EFFECTIVENESS OF AROMATHERAPY UPON PREMENSTRUAL SYNDROME IN B.Sc NURSING STUDENTS

BY

PANDISELVI.R

A DISSERTATION SUBMITTED TO THE TAMILNADU DR.M.G.R MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING

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DECLARATION

I hereby declare that the present dissertation entitled "**Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students"** is the outcome of the original research work undertaken and carried out by me under the guidance of **Dr.Latha Venkatesan,** M.Sc.,(N)., M.Phil.,(N)., Ph.D.,(N), Principal and Professor in Obstetrics and Gynecology Nursing and **Mrs. Lizy Sonia. A.,** M.Sc., (N)., Ph.D.,(N)., Vice Principal and Professor, Head of the department in Medical Surgical Nursing, Apollo College of Nursing, Chennai. I also declare that the material of this has not formed in anyway, the basis for the award of any degree or diploma in this University or any other Universities.

M.Sc (N) II Year

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SYNOPSIS

A Quasi Experimental Study to Assess the Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students at Selected Colleges, Chennai.

The Objectives of the Study were

1. To assess the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
2. To assess the effectiveness of aromatherapy by comparing the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
3. To determine the level of satisfaction regarding aromatherapy in experimental group of B.Sc Nursing students.
4. To find the association between the selected demographic variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students
5. To find the association between the selected clinical variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

The conceptual framework of the study was based on Swanson's Carying theory. The variables of the study were aromatherapy and premenstrual syndrome .Null hypothesis were formulated .The level of significance selected was $p<0.05$.An extensive review of literature was made based on the opinions of the experts.

Demographic variable proforma, Clinical variable proforma, standardized rating scale on premenstrual syndrome and rating scale on satisfaction of Aromatherapy were the various tools used by the researcher. The validity was obtained from various experts and found to be highly reliable, the main study was conducted after the pilot study.

A Quasi experimental research design was used in this study. The present study was conducted in Billroth and Apollo College of Nursing, Chennai (Control group and Experimental group). A sample size of 80 who meet the inclusion criteria were chosen for this study, in that 40 was taken for control group from Billroth College of Nursing and 40 was taken for experimental group from Apollo College of Nursing by purposive sampling technique.

Aromatherapy is the use of essential oil from plants for the management of premenstrual syndrome; here the evening prim rose oil mixed with olive oil and applied over the lower abdomen for a period of 15-20 minutes and it starts 3 days before from the onset of regular menstrual period.

Major Findings of the Study

- The study finding reveals that majority of the B.Sc Nursing students were between the age group of 20-21years (90%, 97.5%), were non vegetarian (80%, 72.5%), most of them were Christians (55%, 62.5%) with monthly family income between Rs.10,001-15,000 (57.5%, 57.5%) and had the family history of premenstrual syndrome (57.5%,80%) in control and experimental group respectively.

- In the present study a significant percentage (40%, 52.5%) of B.Sc Nursing students had the onset of premenstrual syndrome before 49-72 hours of menstruation, majority of them attained menarche at the age of 12-13years (57.5%,90%) and had body weight within the range of 40-52 kg (85%,72.5%), most of the students were between the height of 151-160 cm (50%,55%), had the body mass index within the range of 20-24 (50%-55%) and had 4-5 days (62.5%,77.5%) of menstrual flow in control and experimental group respectively.
- Majority of the B.Sc Nursing students in control group were experiencing severe level of premenstrual syndrome in pre test and post test respectively (75%,72.5%) .Whereas in experimental group most of the students had severe level of premenstrual syndrome (72.5%) in pre test. However after administration of aromatherapy, significant percentage (50%) of the B.Sc Nursing students had mild level of premenstrual syndrome. This could be attributed to the effectiveness of aromatherapy.
- It depicts that there was no significant difference in the mean and standard deviation level of premenstrual syndrome (M=27.6, 27.5, S.D=2.3, 2.3) before and after administration of aromatherapy in control group. Whereas experimental group showed a significant difference ($p<0.001$) in the mean and standard deviation level of premenstrual syndrome (M=28.2, 9.1, SD=5.2, 6.6) before and after administration of aromatherapy and it shows that aromatherapy proved to be effective upon premenstrual syndrome. Hence the null hypothesis H_{01} was rejected.

- The percentage distribution of level of satisfaction on aromatherapy indicated that majority of the B.Sc Nursing students in the experimental group were highly satisfied (85%) in aspects related to researcher, regarding the method of administration of aromatherapy (97.5%) and related to the effectiveness of aromatherapy (90%) respectively.
- The study findings reveal that there was a significant association between the selected demographic variables like family history and the level of premenstrual syndrome ($\chi^2 = 3.95$, df = 1) at $p < 0.05$ before therapy in control group, but no significant association was found with other demographic variables namely age in years, religion, monthly family income in rupees and dietary pattern with the level of premenstrual syndrome in control and experimental group of B.Sc Nursing students. Hence the null hypothesis Ho_2 was partially rejected with regard to family history of premenstrual syndrome.
- It was found that there was no significant association between the selected clinical variables namely age at menarche, weight in kilograms, height in centimeter, body mass index, onset of premenstrual syndrome and the duration of menstrual flow with the level of premenstrual syndrome in both control and experimental group of B.Sc Nursing students. Thus it could be interpreted that clinical variables has no influence on the level of premenstrual syndrome. Hence the null hypothesis Ho_3 was retained.

The above study findings revealed that aromatherapy used by the researcher to reduce the level of premenstrual syndrome was found to be effective.

Recommendations

- The same study can be conducted with larger number of samples.
- A comparison can be made between adolescents and adults.
- The same study can be conducted at different settings.
- A comparison can be made between different types of alternative and complementary therapies.

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CHAPTER I

INTRODUCTION

Background of the Study

When we do the best we can, we never know

What miracle is wrought in our life,

Or in the life of another.

-Helen Keller.

India has one of the fastest growing youth populations in this world, with an estimated 200 million young adults, in that girls below 24 years of age comprise one quarter of India's rapidly growing population, among that 20 million people are affected with menstrual disorders. An adult is a human being that is of relatively mature age, typically associated with sexual maturity and the attainment of reproductive age. This complex passage from childhood to adulthood and it is particularly stressful for girls. So as health care professionals we have to give more importance to this particular period and to bring a healthier adult population.

Menarche is the onset of menstruation and it is one of the most significant milestones in a woman's life. The mean age at menarche varies from population to population and is known to be a sensitive indicator of various characteristics of population including nutritional status, geographical location, environmental conditions and magnitude of socioeconomic inequalities in a society. Studies suggested that menarche tends to appear earlier in life as the sanitary, nutritional and economic conditions of a society improves. For most females, it occurs between the age of 10 to 16 years; however, it shows a remarkable range of variation. The normal range for menstrual

cycle is between 21 to 35 days and the duration of menstrual flow normally ranges from two to seven days. For the first few years after menarche, irregular and longer cycles are common. .A vast majority of girls in India are suffering from either general or reproductive morbidities. If these are not treated early, they could lead to various disabilities and consequently affect their valuable lives. Majority of the studies concluded that more than, 75% of young adults experience some problem associated with menstruation.

Menstrual disorders affect not only India but millions of women in the United States and represent an important health burden. The most common menstrual disorders are premenstrual syndrome; these conditions are leading causes of school, college or work absenteeism and substantially have a impact on quality of life. A recent review of menstrual disorders in developing countries revealed that high rates of menstrual morbidity in population-based studies that is around 75% among young adults.

The early menstrual cycles of adolescent girls may be unovular, irregular but are not devoid of problems for them, but in young adult premenstrual syndrome is one of the most common problems started from three to seven days before the onset of menstruation. These include irritability, malaise, headache, acne, abdominal pain etc, during that time majority of Women is asymptomatic apart from vaginal bleeding; however some may have pain in abdomen with or without gastrointestinal upsets like anorexia and vomiting. The medical and social consequences of premenstrual symptoms and disorders of menstruation influence not only the individual but also her family and society.

According to Abraham (1983) have reported 150 symptoms under the heading of premenstrual syndrome, in that more than 97% of women were experiences at least one of the symptoms. One of the important areas related to menstrual cycle is premenstrual syndrome that is related to the first part of menstrual cycle started after ovulation, increased its intensity during 3 to 5 days prior to the menstruation to first day of menstrual flow related to her physical change, mood, behavior and changes in social adjustment.

The exact cause of Premenstrual Syndrome is not known. It is believed that the changes in the hormones level before the menstrual cycle may be the cause of Premenstrual Syndrome. Females have a natural balance of both the male and female hormones in their body. An increase in the level of prolactin responsible for producing breast milk and male hormones in the body of women can decrease the level of progesterone and delay ovulation. This could also be a possible reason of Premenstrual Syndrome. Premenstrual Syndrome could also be due to imbalance in magnesium and calcium levels in the body.

Anandhalakshmi, et al. (2011) SRM medical college hospital and research centre, conducted a cross sectional study to assess the prevalence of premenstrual syndrome among young college students. The study sample was 300 students, in that 96% of the students had at least one symptom of premenstrual syndrome and the prevalence of premenstrual syndrome was 67%. The finding shows that association between body mass index and premenstrual syndrome, they concluded that prevalence of premenstrual syndrome common in college students.

The diagnosis of premenstrual syndrome can be difficult because many medical and psychological conditions can mimic or worsen symptoms of Premenstrual Syndrome. There are no laboratory tests to determine if a woman has Premenstrual Syndrome. When laboratory tests are performed, they are used to exclude other conditions that can mimic Premenstrual Syndrome. The most helpful diagnostic tool is the menstrual diary, which documents physical and emotional symptoms over months.

The word aromatherapy is derived from the French word “aromatherapy” which means with essential oils Coined by a French chemist Gattefosse in 1930. Aromatherapy is the practice of using the natural oils extracted from flowers, bark stems, leaves, roots or other parts of a plant to enhance psychological and physical well being. The inhaled aroma from these essential oils is widely believed to stimulate brain function. Essential oils can also be absorbed through the skin where they travel through the blood stream and can promote whole body healing.

Aromatherapy is the therapeutic use of essential oils derived from plants. These oils can be absorbed into the body via the skin or the olfactory system. Massage therapy can be defined as a mean of manipulating soft tissues using pressure and traction and is reported as effective for menstrual pain. Aromatherapy is generally performed as combining with massage, and it is thought to be safe and effective in treating premenstrual syndrome.

Aromatherapy is used in a wide range of settings from health spas to hospitals to treat a variety of conditions. In general, it seems to relieve pain, improve mood, and promote a sense of relaxation. Several clinical studies suggest that when

essential oils were used by qualified midwives, pregnant women felt less anxiety and fear, had a stronger sense of well-being, and had less need for pain medications during delivery.

Anderson and Johnson (2005) conducted a randomized controlled study to identify the use of complementary and alternative therapies for obstetrics and gynecological treatment and health promotion. Fifty four articles assessing a variety of health modalities meeting the criteria were included. The study concluded that Complementary and Alternative medicine interventions have evidence of effectiveness for use in obstetrics and gynecological problems.

During the experience, the researcher found that students suffered with premenstrual symptoms were in need of some type of measures to reduce discomforts. As the management by pharmacological method may affect the condition of the body, but the non-pharmacological method which is safe for general health, was preferred by the researcher for the premenstrual syndrome relief. Though there are various types of non-pharmacological measures available to relieve premenstrual syndrome, aromatherapy was found to be safe, inexpensive and effective for premenstrual syndrome and coping during menstruation. Thus the investigator is interested in using aromatherapy for premenstrual syndrome among B.Sc Nursing students.

Need for the Study

For years, premenstrual syndrome was not treated seriously by doctors or the general public. Today, it is universally accepted in medical circles as a genuine condition. It has emerged as a twentieth century phenomenon in part due to the fact that women are

increasing control over reproduction has eliminated the cycle of repeated pregnancy and lactation that for merely characterized the lives of women from puberty to menopause. Premenstrual syndrome may effect at any stage of reproductive life.

In the year 2011 there is a wide range of estimation by American College of Obstetrics and Gynecology, that at least 85 percent of menstruating women have at least one symptom as part of their monthly cycle. Most of these women have fairly mild symptoms that don't need treatment. Others about 3 to 8 % had more severe form of premenstrual syndrome, called premenstrual dysphoric disorder. It occurs more often in women who are between 20-40 years and family history of depression.

A Study was conducted from April 2008 to October 2010 by Meier Sterner reported that the symptoms of premenstrual syndrome were severe among college students. The commonest symptom was mastalgia or heaviness of breasts and most of the women reported anger attacks and depression.

Haskett (2007) reported that around 35 million women in the United States suffering from premenstrual syndrome and in Indian population 159,760,591 women are suffering from premenstrual syndrome, among them 30-40% of women suffer some impairment of daily activity; 75% of women had some symptoms; 3-8% of women had severe level of premenstrual syndrome.

According to statistics, three out of ten women suffer from Premenstrual Syndrome is a group of symptoms sometimes very annoying to appear until 2 weeks before the menstrual cycle and can last until the second day of menstrual cycle. It is important to realize that this condition is serious and should be treated as nuisances, in

some cases the woman gets to experience can be disabling. Among the most common symptoms are apparent in this stress syndrome: abdominal pain, fluid retention, irritability, mood swings, anxiety and severe headache. In more severe cases can be seen depression, sleeping problems and even memory loss.

In the year 2011 Brent investigated the alleviating effects of aromatherapy massage and acetaminophen on menstrual pain among students. Subjects were divided into two groups, the aromatherapy massage group n=32 and the acetaminophen group n=32. Aromatherapy massage was performed on subjects in the massage group. The abdomen was massaged once using clary sage, marjoram, cinnamon, ginger, and geranium in a base of almond oil. The level of menstrual pain was assessed using a visual analogue scale at baseline and twenty-four hours afterward. The reduction of menstrual pain was significantly higher in the aromatherapy group than in the acetaminophen group. These finding suggest that aromatherapy massage provide effective treatment for menstrual discomfort among the students.

The essential oils obtained from plant sources, are safe to use and have no serious side effects. Essential oils of lavender, clary sage, and rose can help reduce the premenstrual syndrome. To make an effective infusion, mix together 12 parts of the essential oil of lavender to one part each of clary sage and rose essential oils. This mixture is then mixed with an equal part of sweet almond oil, which acts as a carrier. Topical application or massage with this oil mix can help to relieve cramps and relax the tense muscle.

The researcher found that the study will be very much effective and hold paramount importance in the life of every girl, who comes across the phenomenon of Pre menstrual syndrome. The researcher has felt that the problems faced by the B.Sc Nursing students during the time of their periods, in which many of them even thought of not attending the classes for days together due to lack of self confidence, shame, and depression. Due to these multiple reasons, the researcher strongly felt that the study will be very much effective to reduce the level of premenstrual syndrome among B.Sc Nursing students.

Statement of the Problem

A Quasi Experimental Study to Assess the Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students at Selected Colleges, Chennai.

Objectives of the Study

1. To assess the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
2. To assess the effectiveness of aromatherapy by comparing the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
3. To determine the level of satisfaction regarding aromatherapy in experimental group of B.Sc Nursing students.
4. To find the association between the selected demographic variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

5. To find the association between the selected clinical variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Operational Definitions

Effectiveness

In this study it refers to the outcome of aromatherapy and it is measured in terms of significant reduction in physical and emotional disturbances of premenstrual syndrome.

Aromatherapy

In this study it refers to the use of essential oil from plants for the management of premenstrual syndrome, here the prim rose oil mixed with olive oil and applied over the lower abdomen for a period of 15-20 minutes and it starts 3 days before from the onset of regular menstrual period.

Premenstrual syndrome

In this study it refers to the group of symptoms that starts from 7 days before a period of menstruation and stops in the first day of menstrual period, during this time most of the women feels many physiological and psychological symptoms due to the hormonal influences as measured by using standardized rating scale on level of premenstrual syndrome.

Students

In this study it refers to the students who are studying B.Sc Nursing third year in Billroth and Apollo College of Nursing,Chennai.

Satisfaction

It is a feeling of gratification attained or achieved by B.Sc Nursing students with aroma therapy as measured by self rating scale on Aroma therapy.

Assumptions

The study assumes that,

- Premenstrual syndrome causes physiological discomforts to the students
- Premenstrual syndrome causes psychological symptoms to the students

Null Hypotheses

Ho_1 There will be no significant difference in the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Ho_2 There will be no significant association between the level of premenstrual syndrome and selected demographic variables before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Ho_3 There will be no significant association between the level of premenstrual syndrome and selected clinical variables before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Delimitations

The study was limited to the students who were

- studying in Billroth & Apollo college of Nursing, Chennai
- studying B.Sc Nursing third year.
- above 18 years of age

- having the premenstrual symptoms.
- having the regular cycle of menstruation
- willing to participate
- available at the time of data collection

Conceptual Framework

Conceptual Framework is an interrelated concepts or abstractions assembled together in rational scheme by virtue of their relevance to a common theme (Polit, 2010).

Swanson's Caring theory was used as conceptual framework in this study to describe the relationship and focus of the study which includes knowing, being with, doing for, enabling and maintaining belief through which interaction can be improved and maintained between the nurse and the B.Sc Nursing students.

Swanson's theory was used in this study as it explains about knowing of the B.Sc Nursing students by the nurses, to be with the students during premenstrual syndrome, to do interventions for the students as needed, to enable the students to maintain their health and to maintain belief of the B.Sc Nursing students. The components of this theory are as follows:

Knowing

This is a striving to understand an event as it has meaning in the health of the other. Here the level of premenstrual syndrome is understood and identified by the researcher.

Being with

Being with means being with other. Thus the nurse researcher was present with the B.Sc Nursing students, identify their needs and caring for them.

Doing for

This refers to doing for the others as she would do for the self if it were all possible. Here the intervention of aromatherapy is provided for the B.Sc Nursing students in order to reduce the level of premenstrual syndrome.

Enabling

Enabling is facilitating the others to pass through the uncomfortable events. Here the nurse researcher facilitates the B.Sc Nursing students to get relief from the premenstrual syndrome.

Maintaining belief

This is sustaining faith in others health. Here the belief of relieving the level of premenstrual syndrome with aromatherapy was maintained among the B.Sc Nursing students.

Feed back

The outcome may either be satisfactory or non-satisfactory in reducing the level of premenstrual syndrome. If the premenstrual syndrome is reduced it means that the therapy was effective and if not reduced, it needs rearrangement of the therapy.

Researcher used this theory as it was found appropriate to assess the effectiveness of aromatherapy upon premenstrual syndrome in B.Sc Nursing students.

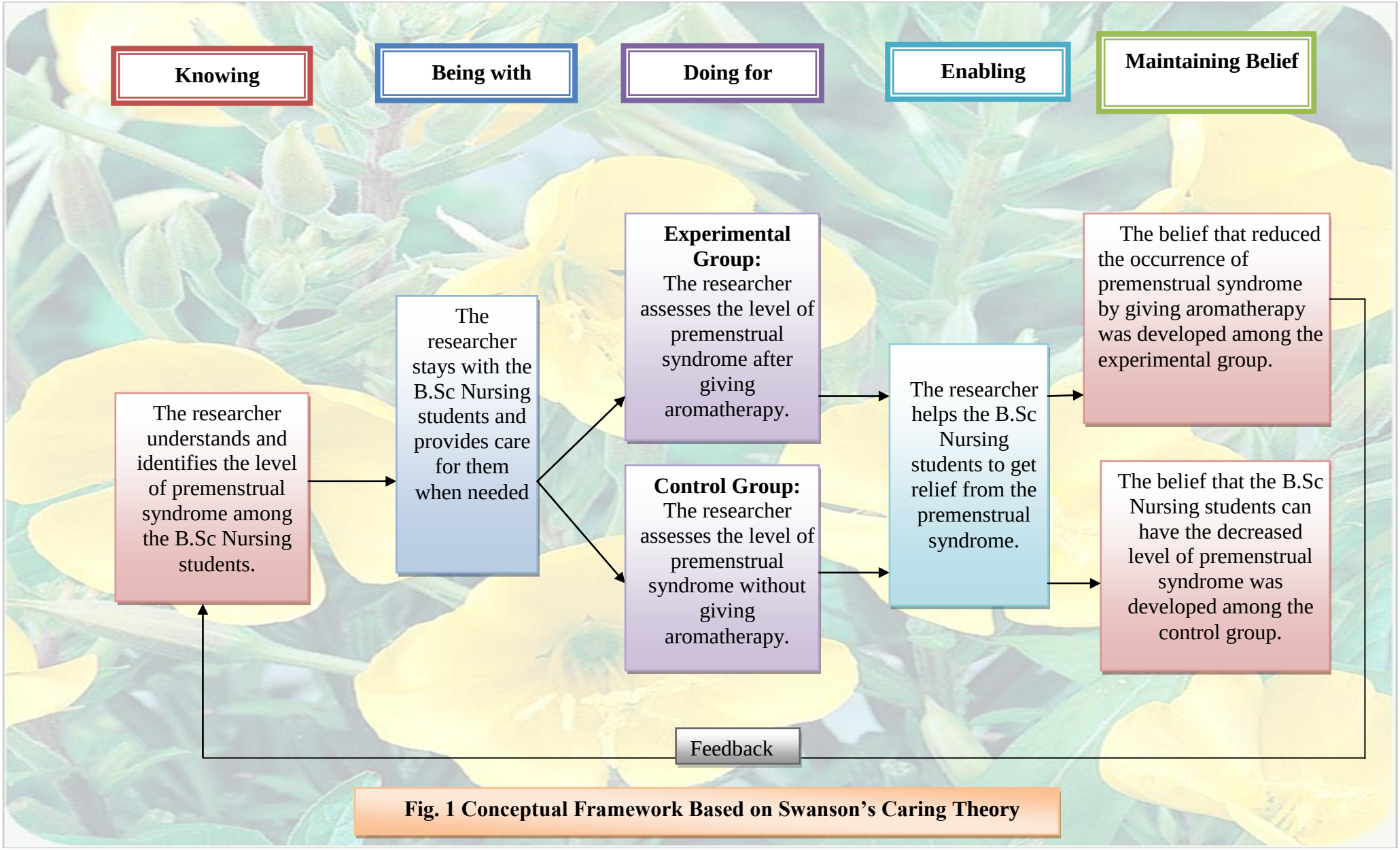

Fig. 1 Conceptual Framework Based on Swanson's Caring Theory

Projected Outcome

This study will be useful to reduce the level of premenstrual syndrome among B.Sc Nursing students. In turn it will help them to deal with the effectiveness of aromatherapy upon premenstrual syndrome there by improve the quality of life.

Summary

This chapter has dealt with background of the study, need for the study, statement of the problem, objectives of the study, operational definitions, assumptions, null hypothesis, delimitations and conceptual framework.

Organization of the Report

Further aspects of the study are presented in the following chapters.

Chapter II - Consists of review of literature

Chapter III - Consists of research methodology which includes research approach, research design, setting, population, and sample, sampling technique, tools used in the study, data collection procedure and plan for data analysis.

Chapter IV- Deals with analysis and interpretation of data done through descriptive and inferential statistics.

Chapter V - Comprises of Discussion

Chapter VI - Consists of summary, conclusion, implications, recommendations and limitations.

CHAPTER II

REVIEW OF LITERATURE

A critical summary of research on a topic of interest, often prepared to put a research problem in context (Polit, 2010).

The review of literature provides information, ideas, data and evidence to the researcher written from a particular standpoint to fulfill certain aims or express certain views on the nature of the topic and how it is to be investigated and the effective evaluation of these documents in relation to the research being proposed.

The review of literature in this chapter has been presented under the following headings.

- Literature related to premenstrual syndrome
- Literature related to aromatherapy
- Literature related to aromatherapy upon premenstrual syndrome

Literature related to Premenstrual Syndrome

Premenstrual syndrome is an array of symptoms that occurs during the second half of the menstrual cycle. The symptoms typically include one or more of the following. Depression, tiredness, irritability, anxiety, headache, breast swelling, tenderness, craving for sweet or salty foods, constipation and skin acne.

Wang et al. (2012) investigated the prevalence of premenstrual syndrome and premenstrual dysphoric disorder among the age group of 18-45 years. For those who

were consistent with premenstrual syndrome diagnostic criteria, the daily record of severity of problems assessed over two months. Participants were then categorized as having no perceived symptoms, mild premenstrual syndrome, and moderate premenstrual syndrome. Among them irritability 91%, breast tenderness 78%, depression 68 %, abdominal bloating 64%.

In the year 2012 Kitamura conducted a study to determine the relationship between premenstrual syndrome among adolescent girls, a total of 1,431 high school students were assessed. Out of them, 71.3% were classified with moderate to severe premenstrual syndrome and 30.2% with premenstrual dysphoric disorder and also 85% of the students had dysmenorrhoea.The rates of prevalence of premenstrual dysphoric disorder and moderate to severe premenstrual syndrome were increased according to the severity of dysmenorrhoea.

A cross sectional study to assess the prevalence of premenstrual syndrome was conducted by Joshi et al. (2011), 107 samples were selected between the age group of 18-30 years by using simple random method, the findings shows that 26 (24.3%) persons did not reported any symptoms and 81 (75.7%) were reported the symptoms of premenstrual syndrome. Mastalgia was the most common symptom (50.5%), followed by mood changes (46.7%), depression (7.5%) and anger attacks (6.5%).

In Surya Fertility centre, Bhakti (2011) conducted a descriptive study to assess the prevalence of premenstrual syndrome among the reproductive age group. Among them 80% of them had mild to moderate premenstrual syndrome, it is estimated by including all women who experience any physical or emotional symptoms prior to

menstruation. In that 30-40% of them had severe symptoms. Only 10% of them had more severe symptoms.

Sharma et al. (2011) conducted a study to assess the type and frequency of problem related to menstruation in Maulana Azad medical college, New Delhi, 198 students had been studied. Data was collected by personal interviews using a pretested, semi structured questionnaire. Results showed that, dysmenorrhea (67.2%) was one of the problems and 63.1% had one or the other symptom of premenstrual syndrome. Daily routine of 60% of girl, was affected due to prolonged bed rest, missed social activities, disturbed sleep and decreased appetite. Study concluded that students had high prevalence of premenstrual syndrome and they need counseling services, relevant information on possible treatment options.

Jesveena (2011) conducted a descriptive study to assess the prevalence of premenstrual syndrome among B.Sc Nursing students of selected Nursing colleges at Mangalore. A quantitative research approach with typical descriptive design was used for 300 B.Sc Nursing students in the age group of 17-25 years. The sample was drawn through stratified random sampling. The findings revealed that majority (55%) were in the age group of 20-22 years. The prevalence of premenstrual syndrome based on International classification of disease-10 diagnostic criteria was found to be 13.33%. Based on Premenstrual syndrome scale (76%) of the samples had mild symptoms, 15% of the students had moderate symptoms, 7% had severe symptoms. The findings showed that out of 40 subjects, majority of the subjects (80-98%) were experiencing abdominal discomfort, fatigue, low back pain, decreased interest in activities, irritability, generalized aches, pains, restlessness, poor concentration and only 2-20% of the subjects' were

experiencing increase in appetite, rapid changes in the mood, rumination, hypersomnia, constipation, craving for any specific item, decreased sexual drive, pedal edema, weight gain, suicidal ideation, generalized edema as most common premenstrual symptoms.

A cross sectional study conducted between the age group of 14-19 years in that 602 samples were selected .All students reported at least one premenstrual syndrome, out of these 224 (40%) met the diagnostic criteria for premenstrual dysphoric disorder. However, 602 students (94.6%) met the inclusion criteria (63.1%) identified themselves as having premenstrual symptoms. The study findings affirm the fact that adolescents with premenstrual disorders suffer from poor health-related quality of life. In order to improve quality of life, support should be provided for this population especially for those who suffer from more severe premenstrual disorders by (Delera et al., 2011).

A cross sectional descriptive study was conducted to assess the prevalence and severity of premenstrual syndrome, with the objectives to rule out the problems related to menstruation in the last three cycles. Study was conducted in three medical collages at different states of India (Jagadalpur, Orissa and madyapradesh). 107 female medical students were randomly chosen for this study. Results showed that the mean age at menarche was 12 years and premenstrual syndrome is the most common problem. In this study 6.32%, 30.37% and 63.2.9% participants were suffering from severe, moderate and mild level of premenstrual syndrome, respectively.

A descriptive study was conducted to determine the frequency and severity of Premenstrual Syndrome in medical college students to evaluate the impact of the condition on the quality of life and to find out the associated risk factors. Unmarried

medical students aged between 18-25 years with regular menstrual period for the last six months were recruited by convenience sampling. Study participants (n=172) had mean age of 21 years. 89 (51%) of the girls met the criteria for Premenstrual syndrome, among them, 53 (59.5%) had mild symptoms, 26 (29.2%) had moderate symptoms and 10 (11.2%) had severe symptoms.10 (5.8%) of the girls were found to have Premenstrual Dysphoric Disorder. Dysmenorrhea ($p < 0.003$) and family history of premenstrual syndrome ($p < 0.001$) were significantly associated with premenstrual syndrome on univariate and multivariate analysis.

In the year (2009) cross-sectional study was carried out among college students of Zahedan University (Iran), aged between 18-27 years. Overall 300 participants were asked to complete an anonymous questionnaire assessing premenstrual symptoms. Out of the 300 participants, 98.2% reported at least one symptom. Most common symptoms were feeling of tiredness or lethargy (84%), depressed mood (72.3%), sudden feeling of sadness or tearfulness (70.3%), anxiety (70%), backache (69%) and sleep problems (66%). The severity of symptoms was significantly higher for the younger women (18-24 years) compared to the older women (25-27 years). Preventive and treatment strategies for premenstrual syndrome are highly recommended. According to studies menstrual problems are common among young girls.

Thakra et al. (2008) conducted a study to find out the types and frequency of problems related to menstruation in adolescent girls and the effect of these problems on daily routine. 198 adolescent girls have been studied between the age group of 13-19 years. Data was collected by personal interviews on a pre-tested, semi-structured questionnaire. The questions covered menstrual problems. Dysmenorrhoea was the

commonest problem is around 67% and 63.1% of the girls had one or the other symptoms of Pre-menstrual syndrome. Other related problems were present in 55% of study subjects. Among them 60% of girls were affected with daily routine due to prolonged bed rest, missed social activities/commitments, disturbed sleep and decreased appetite. 17% of them had absenteeism to school and 25% of them had abstained from work.

Literature related to Aromatherapy

A randomized placebo-controlled clinical trial on college students to assess the effect of aromatherapy upon menstrual cramps by Han et al. (2012). The students were randomized into three groups: (1) an experimental group who received aromatherapy, (2) a placebo group, and (3) a control group. Aromatherapy was applied topically to the experimental group in the form of an abdominal massage using two drops of clary sage and one drop of rose in 5 cc of almond oil. The placebo group received the same treatment but with almond oil only. The menstrual cramps were significantly lowered in the aromatherapy group then in the other two groups at both post-test time points.

Wang et al. (2012) conducted a cross sectional study to investigate the effect of self-aromatherapy massage on menstrual pain and anxiety among staff nurses. The subjects were 63 female nurses who rated their menstrual pain >5 on a 10-point visual analogue scale. Subjects were non-randomly allocated into three groups. Menstrual pain and anxiety levels were assessed using a visual analogue scale, and we assessed the menstrual pain 4 times during a short time period. The menstrual pain was significantly lower in the aromatherapy group than in the other two groups after 24 hours. Using

multiple regression analysis, the use of aromatherapy was found to be associated with the changes in premenstrual symptoms.

In the year 2012 Taavoni conducted a randomized placebo-controlled clinical trial in a menopausal clinic at a gynecology hospital in Tehran. The study population comprised of 90 women who were assigned to an aromatherapy massage group, a placebo massage group, or a control group. Each participant in the aromatherapy massage group received 30-minute aromatherapy treatment sessions twice a week for 4 weeks with aroma oil, whereas participants in the placebo massage group received the same treatment with plain oil. When the aromatherapy massage and the placebo massage groups were compared, the menopausal score for the aromatherapy massage group was found to be significantly lower ($P < 0.001$) than for the placebo group. The results of the study demonstrate that both the placebo massage and aromatherapy massage were effective in reducing menopausal symptoms. However, aromatherapy massage was more effective than placebo massage.

Brent (2011) investigated the alleviating effects of aromatherapy massage and acetaminophen on menstrual pain among students subjects were divided into two groups: the aromatherapy massage group with the sample size of (n=32) and the acetaminophen group with the sample size of (n=32). Aromatherapy massage was performed on subjects in the treatment group. The abdomen was massaged once using clary sage, marjoram, cinnamon, ginger, and geranium in a base of almond oil. The level of menstrual pain was assessed using a visual analogue scale at baseline and twenty-four hours afterward. The reduction of menstrual pain was significantly higher in the aromatherapy group than in

the acetaminophen group. These finding suggest that aromatherapy massage provide effective treatment for menstrual pain among the students.

A journal on alternative and complimentary medicine (2010), Kathryn. conducted a cross sectional study to explore the effect of aromatherapy on premenstrual syndrome among college students. The study was a randomized placebo-control trail. The sample size was 67 college students. The visual analogue scale was used to assess their pain level with a verbal multidimensional scoring system. The menstrual cramps were significantly lowered in the aromatherapy group than in the other groups at both post test points. The findings suggest that aromatherapy using topically applied lavender, clay sage, rose is effective in decreasing the severity of menstrual cramps. Aromatherapy can be offered as part of the nursing care to women experiencing menstrual cramps.

A randomized placebo- controlled clinical trial was conducted in Korea with the objective to explore the effect of aromatherapy on menstrual cramps and symptoms of dysmenorrhoea. The subjects were 67 college students. Subjects were randomized into three groups, an experimental group (n=25) who received aroma therapy, a placebo group (n=20) and a control group (n=22) Aromatherapy was applied topically to the experimental group in the form of an abdominal massage using two drops of lavender, one drop of clary sage and one drop of rose in 5cc almond oil. The placebo group almond oil only and the control group received no treatment. The menstrual cramps were assessed using a visual analogue scale. Menstrual cramps were significantly lowered in the aromatherapy group than in the other two groups. (Jung et al. 2008).

Kim et al. (2006) conducted a cross sectional study to explore the effect of aromatherapy on premenstrual syndrome among college students. The study was a randomized placebo-control trail. The sample size was 67 college students. The visual analogue scale was used to assess their pain level with a verbal multidimensional scoring system. The menstrual cramps were significantly lowered in the aromatherapy group than in the other groups at both post test points. The findings suggest that aromatherapy using topically applied lavender, clay sage, rose is effective in decreasing the severity of menstrual cramps. Aromatherapy can be offered as part of the nursing care to women experiencing menstrual cramps. The study consisted of a double-blind, three-group experimental pre-test and post-test design, and the results indicated that menstrual cramps were significantly lowered in the aromatherapy group than in the other two groups after the intervention.

Literature related to Effectiveness of Aromatherapy upon Premenstrual Syndrome

A study was conducted by Carroll (2011) among 80 students suffering from premenstrual syndrome. The students were randomly divided into two groups and received, either 10 drops of citrus essence or placebo drops, three times a day during the luteal phase for two cycles. The group on citrus essence witnessed a significant reduction of 46.08% in the symptoms compared to the group on placebo 14.21%, ($p<0.001$). After the intervention, there were also significant decreases in the severity of physical and psychological symptoms in both citrus essence respectively, 24.3% and 21.78% and placebo groups respectively, 2.07% and 9.21%, ($p<0.001$). The study showed that citrus essence could reduce the severity of premenstrual syndrome. The essence is suggested to be taken during the luteal phase in two consecutive cycles.

In the year 2010 Brush et al. conducted the study to evaluate the effectiveness of primrose oil on management of premenstrual syndrome, the sample size was 68 and they received 1-2gms of prime rose oil for 3 days before the onset of premenstrual symptoms until the first day of menstruation, based on self report scale the researcher concluded that among them 61% of them had complete relief of premenstrual symptoms, 16% of them had partial relief of symptoms.

Dante (2010) conducted a meta analytical study to find out the use of natural oils for the management of premenstrual syndrome, the findings reported that vitex agnus castus and the evening primrose oil will be more effective in the management of premenstrual symptoms.

A study was conducted to evaluate the therapeutic effectiveness of evening primrose oil in the relief of 10 symptoms associated with premenstrual syndrome was studied in 38 women,. The prospective trial was randomized; double-blind and placebo controlled and was crossed over after three cycles. Although the result showed an improvement in symptoms of premenstrual syndrome during the trial, no significant difference in the scoring between the active and placebo groups were found over six cycles. No carry over effect of active medication was observed, the beneficial effect on all symptoms was rapid, the scoring decreasing in the first cycle but increasing slightly at the change over period after the third cycle, irrespective of whether the active and placebo medication was next given. These findings indicate that the improvement by the women with moderate premenstrual syndrome was slowly a placebo effect.

According to the report of George in the year 2007, more than 85% of the person will be getting relief of premenstrual syndrome with primrose oil massage. He selected the sample of 100 college students with premenstrual syndrome and the intervention given to the students with lavender oil massage for the duration of 15-20 minutes for three days.

Sampalis (2006) conducted a study to evaluate the effectiveness of Neptune Krill Oil for the management of premenstrual syndrome and dysmenorrhoea and to compare the effectiveness of Neptune krill oil for the management of premenstrual syndrome and dysmenorrhoea with that of omega-3 fish oil. Treatment period of three months with either Neptune krill oil or omega-3 fish oil. In 70 patients with complete data, a statistically significant improvement was demonstrated among baseline, intermittent, and final evaluations in the self assessment questionnaire ($p < 0.001$) within the Neptune krill oil group as well as between-group comparison to fish oil, after three cycles or 45 and 90 days of treatment. Data analysis showed that Neptune Krill Oil can significantly reduce dysmenorrhoea and the emotional symptoms of premenstrual syndrome and is shown to be significantly more effective for the complete management of premenstrual symptoms compared to omega-3 fish oil.

Summary

This chapter dealt with the review of literature related to the problem stated. The literatures were taken from the 13 primary and 11 secondary sources. It helped the researcher to develop tools, collect data, organize and analyze the data.

CHAPTER III

RESEARCH METHODOLOGY

This chapter deals with the methodology used by the researcher in this study which includes research approach, research design, setting of the study, population, sample, sampling technique used, sampling criteria, selection and development of the tools, reliability and validity of the tools, pilot study, data collection procedure and plan for data analysis.

Research Approach

Polit and Beck (2010) says that a true experimental study should be characterized by manipulation, control and randomization as it helps to give the cause and effect relationship between the variables. The effectiveness of aromatherapy upon premenstrual syndrome is to be assessed in this study, so the researcher found experimental approach to be appropriate.

Research Design

Research design is the overall plan for addressing a research question, including specifications for enhancing the study's integrity (Polit, 2008).

Quasi experimental design was used in this study. The researcher assessed the level of premenstrual syndrome with the standardized premenstrual syndrome scale before intervention for both the control and experimental group of B.Sc Nursing students. The researcher provided aromatherapy massage in lower abdomen with the duration of 15-20 minutes for the experimental group of B.Sc Nursing students, the massage was

given for three days before the onset of regular menstrual cycle. After three days the post test done for both experimental and control group, then the level of satisfaction of aromatherapy was assessed from the experimental group of B.Sc Nursing students.

O1 - O2 - Control group

O1 X O2 - Experimental group

O1 - Assessment before aromatherapy

X - Administration of aromatherapy

O2 - Assessment after aromatherapy

Variables

Variable is an attribute that varies, that is takes on different values (Polit, 2010).

Independent variable

The variable that is believed to cause or influence the dependent variable is called independent variable(Polit & Beck, 2008). The Independent variable of this study was aromatherapy.

Dependent variable

The variable hypothesized to depend on or be caused by independent variable is the dependent variable. The dependent variable in this study was premenstrual syndrome.

Extraneous variables

A variable that confounds the relationship between the independent and dependent variables that needs to be controlled either in the research design or through statistical procedures (Polit & Beck, 2008). Demographic variables and clinical variables are the extraneous variables in this study.

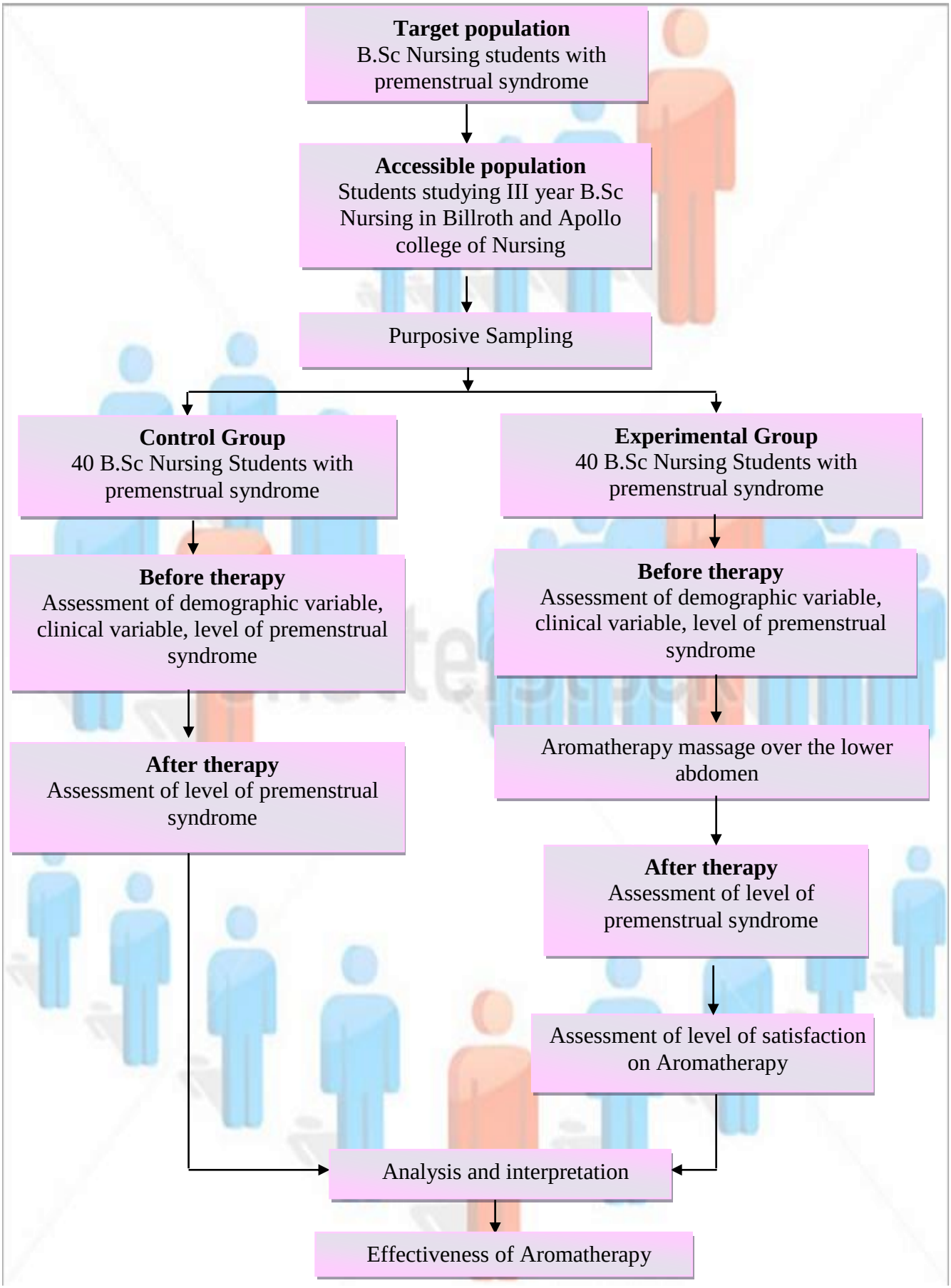

Fig. 2 Schematic Representation of the research Design

Research Setting

The physical setting is the location where the data collection takes place in the study. The study was conducted at Billroth and Apollo College of Nursing, Chennai. Billroth College of Nursing, Madhuravoyal, Chennai (Control Group) is located 7 kilometers away from Chennai Central railway station, 3 kilometers from the main bus station and 1 kilometer from Apollo college of Nursing. The strength of students is about 250 and staff strength about 25. The setting was chosen on feasibility in terms of availability of adequate subjects. Apollo College of Nursing (Experimental Group) is located 8 kilometers away from Chennai Central railway station. In B.Sc Nursing the strength of the students is about 378. The setting was chosen on feasibility in terms of availability of adequate subjects.

Population

Population is the entire set of individuals or objects having some common characteristics (Polit and Beck 2010). The target population is the entire population in which a researcher is interested and to which he or she would like to generalize the study results. In this study the target population was all the B.Sc Nursing students. The accessible population is the aggregate of cases that conform to designated criteria and that are accessible as subjects for a study. In this study the accessible population was the students studying B.Sc Nursing third year in Billroth and Apollo College of Nursing, Chennai.

Sample

According to Polit and Beck (2010) sample is a subset of population elements. A sample of 40 B.Sc Nursing students studying third year in Billroth College of Nursing was selected as control group and a sample of 40 B.Sc Nursing students studying third year in Apollo College of Nursing was selected as experimental group.

Sampling Technique

Sampling technique is the process of selecting a portion of the population to represent the entire population so that inferences about the population can be made (Polit and Beck 2010). Purposive sampling was used in this study for the students who satisfy the inclusion criteria and they were assigned to control group and the experimental group.

Sampling Criteria

Inclusion criteria

The study includes the students who were

- studying in Billroth & Apollo College of Nursing, Chennai
- studying B.Sc Nursing third year
- above 18 years of age
- having the premenstrual symptoms.
- having the regular cycle of menstruation
- willing to participate
- available at the time of data collection

Exclusion criteria

The study excluded that students who were,

- having other physical illness
- studying in first, second and fourth year B.Sc Nursing in Billroth and Apollo College of Nursing, Chennai.

Selection and Development of Study Instruments

The instruments for this study were developed to evaluate the effectiveness of aromatherapy upon premenstrual syndrome through extensive review of literature. The instruments used in this study were demographic variable proforma, obstetric variable proforma, standardized rating scale on premenstrual syndrome and rating scale on satisfaction of aromatherapy upon premenstrual syndrome.

Demographic variable proforma

Demographic variable proforma consists of age, religion, monthly family income in rupees, dietary pattern and family history of premenstrual syndrome.

Clinical variable proforma

Clinical variable proforma consists of age at menarche, weight in kilograms, height in centimetre, body mass index, onset of premenstrual syndrome, duration of menstrual flow.

Standardized rating scale on premenstrual syndrome

This is a standardized tool developed by Meir Steiner, (1999) to evaluate the different domains of premenstrual syndrome with the severity rating on either a 0-2

continuum or 0-4 continuum. (No symptoms, Doubtful, Mild, Moderate, Severe). Totally it has 10 questions and the obtainable score range is 0-36.

Score interpretation

Scoring	Percentage	Interpretation
28-36	76 – 100%	Severe
19-27	51 – 75%	Moderate
10-18	26 – 50%	Mild
1-9	1– 25%	Doubtful
0	0%	No disturbance

Rating scale on satisfaction of aromatherapy

This scale was designed by the researcher to assess the satisfaction level of the Participants regarding aromatherapy provided during premenstrual syndrome which is assessed after 3 days.

The satisfaction score were classified as follows:

Scoring	Percentage	Interpretation
43-56	76-100%	Highly Satisfied
29-42	51-75%	Satisfied
15-28	26-50%	Dissatisfied
≤ 14	$\leq 25\%$	Highly Dissatisfied

Psychometric Properties of the Instruments

Validity

Content validity is the degree to which an instrument measures what it is supposed to measure. Content validity is the sampling adequacy of the content being measured. (Polit & Hungler, 2007).

Premenstrual Syndrome scale is a standardized and valid tool developed by Meir Steiner and was used in this study. The content validity of the other tools was obtained by getting opinion from seven experts. The experts have suggested some specific modifications in the demographic and clinical variable proforma of B.Sc Nursing students, rating scale on level of satisfaction regarding aromatherapy among B.Sc Nursing students. The modifications and suggestions of experts were incorporated in the final preparation of the tool.

Reliability

Reliability is the degree of consistency with which an instrument measures the attribute which is designed to measure (Polit & Hungler 2007).

Instrument I: Rating Scale on Premenstrual Syndrome

The reliability of the premenstrual syndrome scale was assessed by Carroll and it was 0.98 which was found to have high level of internal consistency among the subjects. In this research the reliability was found by Karl Pearson's method, which was 0.9 found to be highly reliable.

Instrument II: Rating Scale on satisfaction of Aromatherapy

The reliability was assessed through test – retest method and found to be 0.9 and content validity was obtained from the experts among them two were doctors and five members from the nursing profession. The suggestions given by the validators regarding rating scale was made in the final preparation of the tool.

Pilot Study

Pilot study is a small scale version or trial run done in preparation for a major study (Polit, 2004). The purpose of the pilot study was to find out the feasibility and practicability of study design.

The pilot study was conducted at fourth year B.Sc Nursing in Apollo College of Nursing, Chennai by selecting 12 students, in those six students in the control group and six students in the experimental group using purposive sampling method in order to assess the methodology and tool. The level of premenstrual syndrome was assessed using standardized premenstrual syndrome scale respectively for both the control and experimental group before therapy. Aromatherapy was provided for three days with the duration of 15-20 minutes before the onset of menstruation. Again the level of premenstrual syndrome was assessed for both the group. The level of satisfaction of aromatherapy was assessed from the experimental group after three days. After the pilot study, it was found to be feasible and effective and the study instruments were found to be appropriate.

Protection of Human Rights

- The study was conducted after the approval of ethical committee, Apollo Hospitals, Chennai.
- The permission was obtained from the managerial authorities of the colleges to conduct the study, in Billroth and Apollo College of Nursing, Chennai.
- The participants were explained about the study and obtained written consent after providing assurance and developing confidence.
- Confidentiality of the data was maintained throughout the study.

Data Collection Procedure

Data collection is gathering information about something which the researcher has chosen to explore or investigate (Crookes and Davies 1998).

- The researcher was trained for one week in giving aromatherapy and certified before data collection.
- The research proposal was presented to the Ethical committee, Apollo Hospitals to proceed with the data collection.
- The data was collected from June 21to July 25.
- The participants were explained about the study and obtained written consent after providing assurance and developing confidence.
- The participants were selected using purposive sampling and the data collected from the participants through self administration method.

- The level of premenstrual syndrome assessed by standardized premenstrual tension syndrome scale, before intervention for both control and experimental group of B.Sc Nursing Students.
- Evening prim rose oil 5 ml mixed with 10 ml of olive oil and the massage was provided over the lower abdomen.
- Aromatherapy massage was provided once in daily for three days with the duration of 15-20 minutes before the onset of menstruation especially in the morning hours between (6am -7am) for experimental group of B.Sc Nursing Students.
- On the fourth day the level of premenstrual syndrome assessed in control and experimental group with the same tool.
- The level of satisfaction on aromatherapy was assessed in experimental group of B.Sc Nursing Students by rating scale after three days of intervention.

Problems Faced During Data Collection

During data collection procedure, the problem faced by the researcher is few students were not willing to participate in the study, because they felt discomfort to show their abdomen for massage.

Plan for Data Analysis

Data analysis is the systematic organization, synthesis of research data and testing of hypothesis using those data (Polit and Beck 2010).

Analysis were carried out by using descriptive statistics like frequency distribution, percentage, mean, standard deviation and inferential statistics like paired 't'

test. The association between the demographic variables, obstetric variables and dependent variables were analyzed with the help of chi-square test.

Summary

This chapter dealt with the research approach, research design, setting, population, and sample, sampling technique, sampling criteria, development of study instruments, reliability and validity of the instruments, protection of human rights, pilot study, data collection procedure and plan for data analysis.

CHAPTER IV

ANALYSIS AND INTERPRETATION

The analysis is defined as the method of organizing data in such a way that the research questions can be answered. Interpretation is the process of the results and of examining the simplification of the findings with in a broader context (Polit & Hungler, 2007).

This chapter deals with the analysis and interpretation including both descriptive and inferential statistics. Statistics is the field of study concerned with techniques or methods of collection of data, classification, summarization, interpretation, drawing inferences, testing of hypotheses, making recommendations, etc.(Mahajan, 2004).

The data was analyzed according to the objectives and hypothesis of the study. Analysis of the study was compiled after all the data was transferred to the master coding sheet. The investigator used Descriptive and Inferential statistics for analysis. The data were analyzed, tabulated and interpreted using appropriate descriptive and inferential statistics.

Organization of the Findings

The findings of the study was organized and presented under the following headings.

- Frequency and percentage distribution of selected demographic variables in the control and experimental group of B.Sc Nursing students.
- Frequency and percentage distribution of selected clinical variables in the control and experimental group of B.Sc Nursing students.

- Frequency and percentage distribution of level of premenstrual syndrome before and after administration of aromatherapy in the control and experimental group of B.Sc Nursing students.
- Comparison of mean and standard deviation level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
- Frequency and percentage distribution of level of satisfaction regarding aromatherapy in the experimental group of B.Sc Nursing students.
- Association between the selected demographic variables and the level of premenstrual syndrome before and after administration of aromatherapy in the control and experimental group of B.Sc Nursing students.
- Association between the selected clinical variables and the level of premenstrual syndrome before and after administration of aromatherapy in the control and experimental group of B.Sc Nursing students.

Table 1

Frequency and Percentage Distribution of Demographic Variables in the Control and Experimental Group of B.Sc Nursing Students.

Demographic variables	Control Group n=40		Experimental Group n=40	
	n	p	n	p
Age in years				
≤ 19	-	-	-	-
20-21	37	90	39	97.5
≥ 22	3	10	12	2.5
Religion				
Hindu	18	45	15	37.5
Christian	22	55	25	62.5
Muslim	-	-	-	-
Others	-	-	-	-
Monthly Family income in rupees				
≤ 10,000	9	22.5	7	17.5
10,001-15,000	23	57.5	23	57.5
15,001-19,999	1	2.5	10	25
≥ 20,000	-	-	-	-

The data in the table 1 revealed that majority of the students were between the age group of 20-21years (90%, 97.5%), most of them were Christians (55%, 62.5%) with monthly family income between Rs.10,001-15,000 (57.5%, 57.5%) in control and experimental group respectively.

Figure 3 shows that majority of the students were non vegetarian (80%, 72.5%) in control and experimental group respectively.

Figure 4 reveals that most of the students (57.5%, 80%) had the family history of premenstrual syndrome in control and experimental group respectively.

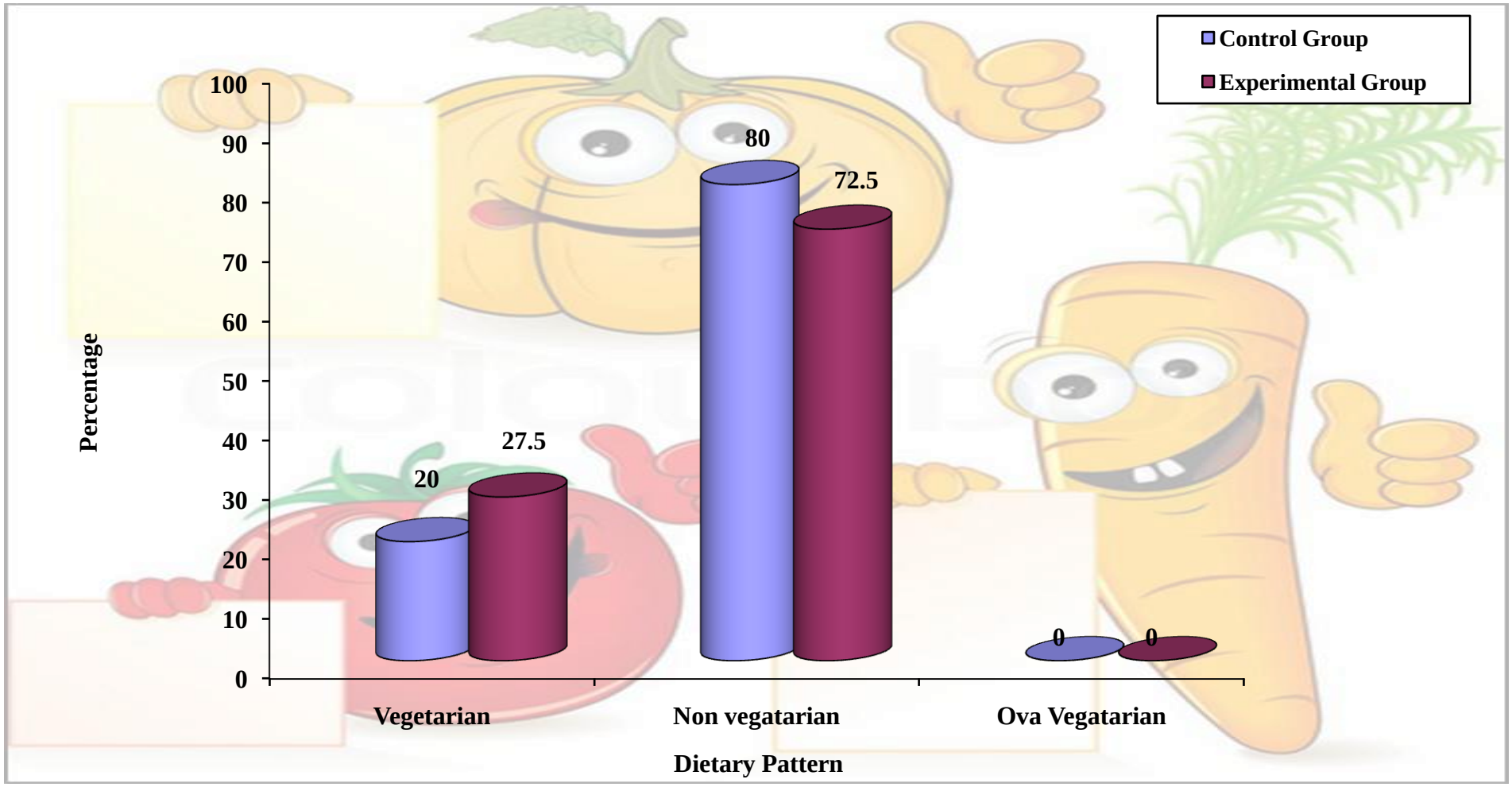

Fig.3 Percentage Distribution of Dietary Pattern in Control and Experimental Group of B.Sc Nursing Students

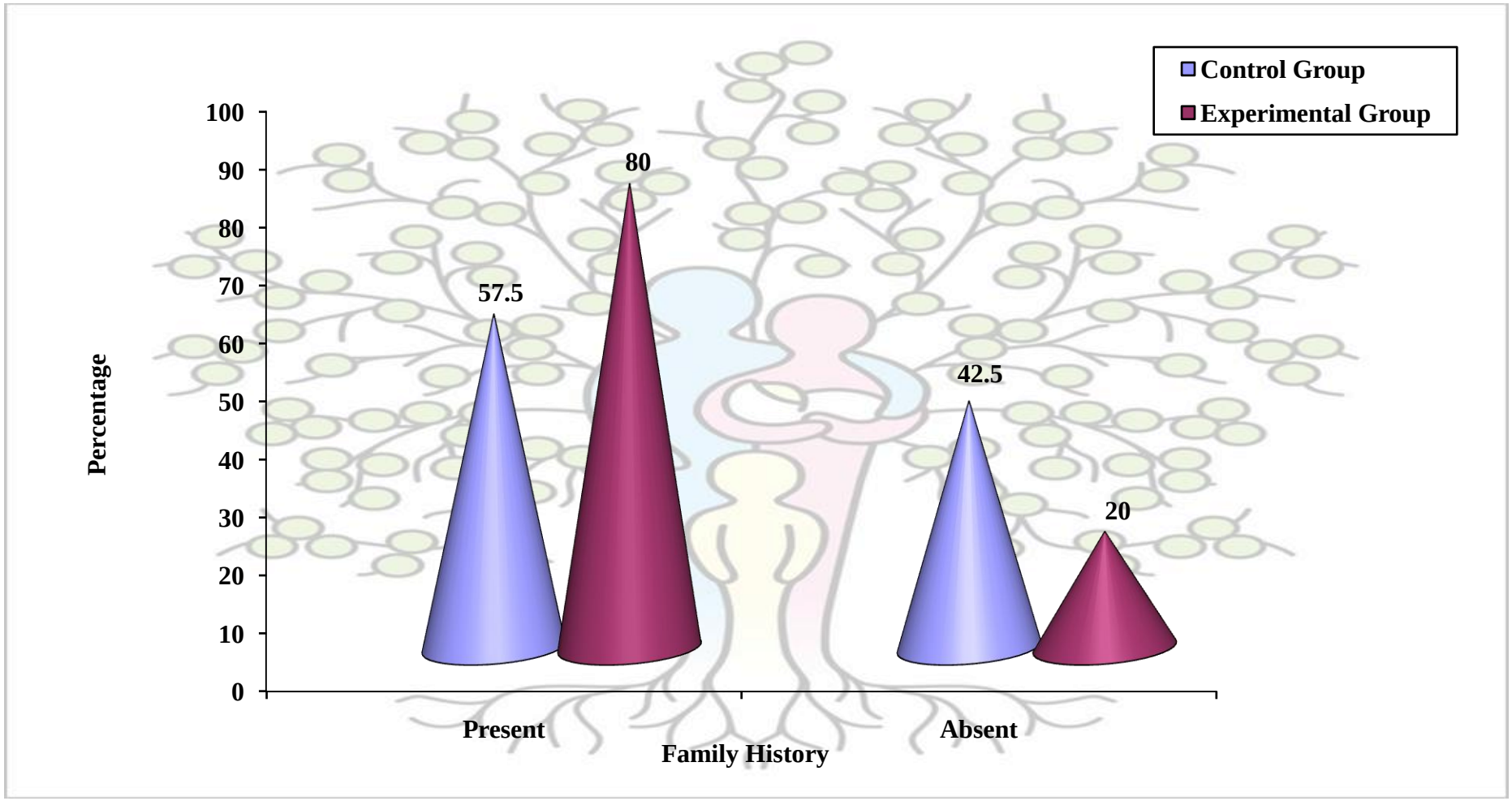

Fig.4 Percentage Distribution of Family History of Premenstrual Syndrome in Control and Experimental Group of B.Sc Nursing Students

Table. 2

Frequency and Percentage Distribution of Clinical Variables in Control and Experimental Group of B.Sc Nursing Students.

Clinical variables	Control Group n=40		Experimental Group n=40	
	n	p	n	P
Age at menarche (in years)				
≤ 11	1	2.5	-	-
12-13	23	57.5	37	90
14-15	16	40	3	10
≥ 16	-	-	-	-
Weight in kg				
≤ 40	7	17.5	1	2.5
41-46	17	42.5	10	25
47-52	10	25	18	45
53-58	5	12.5	10	25
≥ 59	1	2.5	1	2.5
Height in cm				
≤ 140	1	2.5	-	-
141-150	11	27.5	11	27.5
151-160	20	50	23	57.5
161-169	6	15	5	12.5
≥ 170	2	5	1	2.5

Body mass index in(kilogram/m2)				
≤ 19	20	50	18	45
20-24	20	50	22	55
25-29	-	-	-	-
≥ 30	-	-	-	-
Duration of menstrual flow				
≤ 3	7	17.5	4	10
4-5	25	62.5	31	77.5
6-7	8	20	5	12.5
≥ 8	-	-	-	-

Table 2 revealed that majority of the B.Sc Nursing students attained menarche at the age of 12-13years (57.5%,90%) and had body weight within the range of 40-52 kg (85%,72.5%), most of them were between the height of 151-160 cm (50%,55%), had the body mass index within the range of 20-24 (50%-55%) and had 4-5 days (62.5%,77.5%) of menstrual flow in control and experimental group respectively.

Figure 5 shows that significant percentage (40%, 52.5%) of B.Sc Nursing students had the onset of premenstrual syndrome before 49-72 hours of menstruation in control and experimental group respectively.

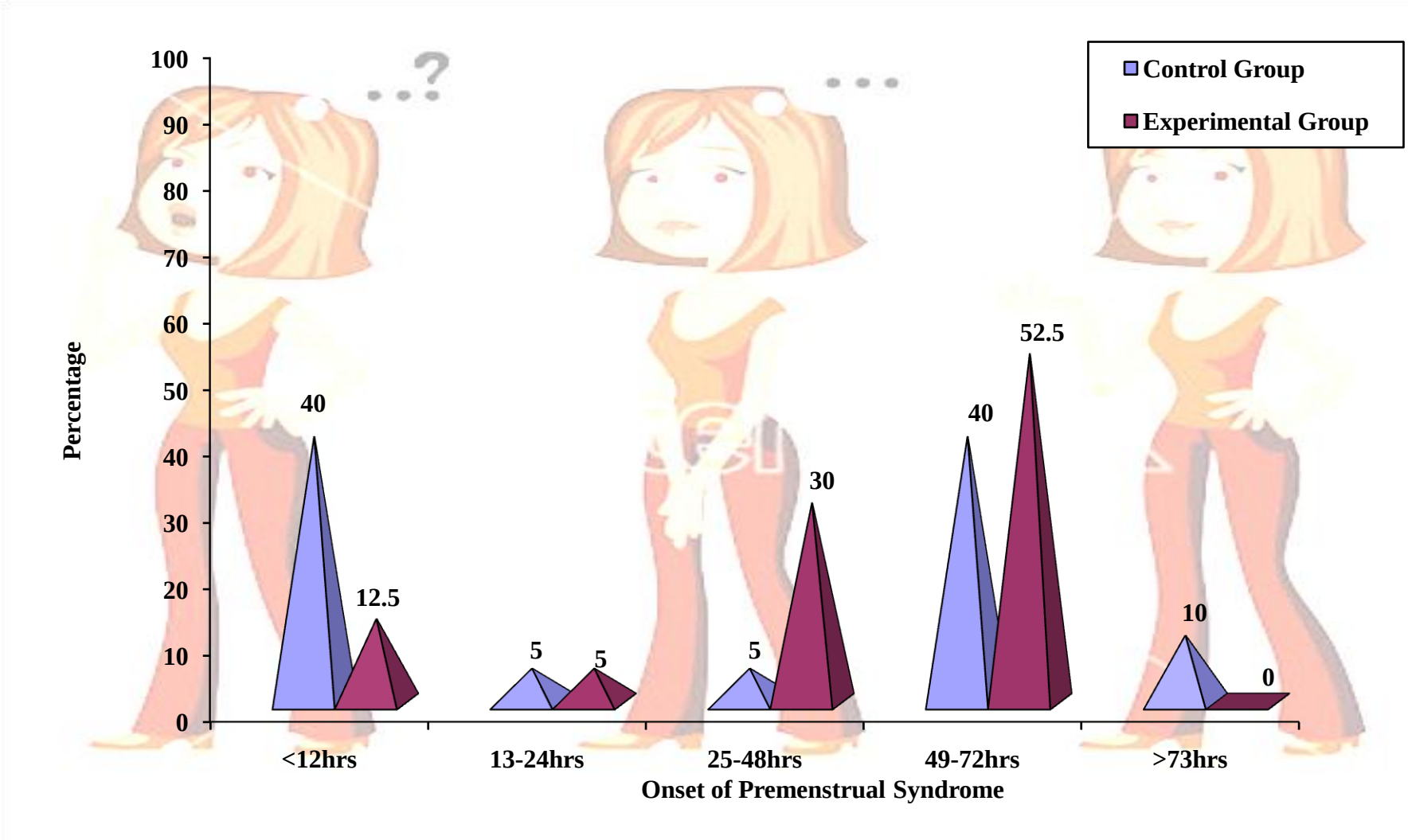

Fig.5 Percentage Distribution of Onset of Premenstrual Syndrome in Control and Experimental Group of B.Sc Nursing Students

Table 3

Frequency and Percentage Distribution of Level of Premenstrual syndrome Before and After Administration of Aromatherapy in Control and Experimental Group of B.Sc Nursing Students.

Level of premenstrual syndrome	Before therapy n=40		After therapy n=40	
	n	P	n	p
Control Group				
No symptoms	-	-	-	-
Doubtful	-	-	-	-
Mild symptoms	3	7.5	3	7.5
Moderate symptoms	7	17.5	8	20
Severe symptoms	30	75	29	72.5
Experimental Group				
No symptoms	-	-	8	20
Doubtful	-	-	10	25
Mild symptoms	4	10	20	50
Moderate symptoms	7	17.5	2	5
Severe symptoms	29	72.5	-	-

Table 3 depicts that majority of the B.Sc Nursing students in control group were experiencing severe level of premenstrual syndrome in pre test and post test respectively (75%,72.5%) .Whereas in experimental group most of the students had severe level of premenstrual syndrome (72.5%) in pretest. However after administration of aromatherapy, significant percentage (50%) of the B.Sc Nursing students had mild level of premenstrual syndrome.

Table 4

Comparison of Mean and Standard Deviation Level of Premenstrual Syndrome Before and After Administration of Aromatherapy in Control and Experimental Group of B.Sc Nursing Students.

Level of premenstrual syndrome	Control Group n=40		Experimental Group n=40		't' Value
	M	SD	M	SD	
Before therapy	27.6	5.3	28.8	5.2	1
After therapy	27.5	5.3	9.1	6.6	14

***P < 0.001

Table 4 reveals that there was no significant difference in mean and standard deviation level of premenstrual syndrome (M=27.6, 27.5, S.D=2.3, 2.3) before and after administration of aromatherapy in control group of B.Sc Nursing students. Whereas experimental group showed a significant difference ($p<0.001$) in the mean and standard deviation level of premenstrual syndrome (M=28.2, 9.1, SD=5.2, 6.6) before and after administration of aromatherapy. The level of confidence was 99.9% and it shows the effectiveness of aromatherapy upon premenstrual syndrome. Hence the null hypothesis Ho_1 was rejected.

Table 5

Frequency and Percentage Distribution of Level of Satisfaction regarding Aromatherapy in Experimental Group of B.Sc Nursing Students.

(N=40)

Domains	**Highly satisfied**		**Satisfied**		**Dissatisfied**		**Highly dissatisfied**	
	n	**p**	**n**	**P**	**n**	**p**	**n**	**p**
Overall satisfaction	37	92.5	3	7.5	-	-	-	-
Related to the researcher	34	85	6	15	-	-	-	-
Method of administration of aromatherapy	39	97.5	1	2.5	-	-	-	-
Effectiveness of aromatherapy	36	90	4	10	-	-	-	-

It is inferred from the table 5 that majority of the B.Sc Nursing students in the experimental group were highly satisfied (85%) in aspects related to researcher, regarding the method of administration of aromatherapy (97.5%) and related to the effectiveness of aromatherapy (90%) respectively.

Table 6

Association between the Selected Demographic Variables and the Level of Premenstrual Syndrome Before and After Administration of Aromatherapy in Control Group of B.Sc Nursing Students.

(N=40)

Demographic variables	Before therapy			After therapy		
	Upto mean n	Above Mean n	χ^2 value	Upto mean n	Above mean n	χ^2 value
Age in years						
Upto 21	9	28	0.48	11	26	1.23
Above 21	1	2	(df=1)	0	3	(df=1)
Religion						
Hindu	6	12	0.15	5	13	0.076
Christian	6	16	(df=1)	7	15	(df=1)
Monthly family income in rupees						
Upto 10,000	3	6	0.78	3	6	0.19
Above 10,000	6	25	(df=1)	8	23	(df=1)
Dietary pattern						
Vegetarian	1	7	0.83	0	8	3.83
Non vegetarian	9	23	(df=1)	11	21	(df=1)

Family history of premenstrual syndrome						
Present	16	10	3.95*	4	19	1.67
Absent	4	10	(df=1)	6	11	(df=1)

*p < 0.05

It could be revealed from the table 6 that there was a significant association between the selected demographic variables like family history and the level of premenstrual syndrome ($p<0.05$) before therapy in control group , but no significant association was found with other demographic variables namely age in years, religion, monthly family income in rupees and the dietary pattern. Hence the null hypothesis Ho_2 was partially rejected with regard to family history of premenstrual syndrome.

Table 7

Association between the Selected Demographic Variables and the Level of Premenstrual Syndrome Before and After Administration of Aromatherapy in Experimental Group of B.Sc Nursing Students.

(N=40)

	Before therapy			After therapy		
Demographic variables	**Upto mean n**	**Above mean n**	**χ^2 value**	**Upto mean n**	**Above Mean n**	**χ^2 value**
Age in years						
Upto 21	11	28	2.39	19	1	1.025
Above 21	1	0	(df=1)	1	0	(df=1)
Religion						
Hindu	6	9	1.78	10	5	1.01
Christian	6	19	(df=1)	9	16	(df=1)
Monthly family income in rupees						
Upto 10,000	2	5	0.008	3	4	0.07
Above 10,000	10	23	(df=1)	16	17	(df=1)
Dietary pattern						
Vegetarian	5	6	1.72	6	5	0.55
Non vegetarian	7	22	(df=1)	12	17	(df=1)

Family History of Premenstrual Syndrome						
Present	11	21	1.45	15	17	0.02
Absent	1	7	(df=1)	4	4	(df=1)

Data presented in the table 7 depicts that there was no significant association between the selected demographic variables namely age in years, religion, monthly family income in rupees, dietary pattern and family history of premenstrual syndrome with the level of premenstrual syndrome. Hence the null hypothesis Ho_2 was retained.

Table 8

Association between the Selected Clinical Variables and the Level of Premenstrual Syndrome Before and After Administration of Aromatherapy in Control Group of B.Sc Nursing Students.

(N=40)

Clinical variables	Before therapy			After therapy		
	Upto mean n	Above mean n	χ^2 value	Upto mean n	above mean n	χ^2 value
Age at menarche						
Upto 13	6	18	0	9	28	2.49
Above 13	4	12	(df=1)	2	1	(df=1)
Weight in kg						
Upto 47	8	16	2.2	4	7	0.59
Above 47	2	14	(df=1)	7	22	(df=1)
Height in cm						
Upto 150	4	8	0.634	4	8	0.09
Above 150	6	22	(df=1)	8	20	(df=1)
Body mass index						
Upto 19	3	17	2.13	6	14	0.53
Above 19	7	13	(df=1)	4	16	(df=1)

Onset of premenstrual syndrome						
Upto 12hrs	4	12	0	4	12	0.08
Above 12hrs	6	18	(df=1)	7	17	(df=1)
Duration of menstrual flow						
Upto 5 days	8	24	0	9	23	0.03
Above 5 days	2	6	(df=1)	2	6	(df=1)

Table 8 shows that there was no significant association between the selected clinical variables namely age at menarche, weight in kilograms, height in centimeter, body mass index, onset of premenstrual syndrome and the duration of menstrual flow with the level of premenstrual syndrome. Hence the null hypothesis Ho_3 was retained.

Table 9

Association between the Selected Clinical Variables and the Level of Premenstrual Syndrome Before and After Administration of Aromatherapy in Experimental Group of B.Sc Nursing Students.

(N=40)

Clinical variables	Before therapy			After therapy		
	Upto mean n	Above mean n	χ^2 value	Upto mean n	Above mean n	χ^2 value
Age at menarche						
Upto 13 years	11	26	0.017	17	20	0.477
Above 13 years	1	2	(df=1)	2	1	(df=1)
Weight in kg						
Upto 47	2	9	1.009	5	6	0.025
Above 47	10	19	(df=1)	14	15	(df=1)
Height in cm						
Upto 150	3	8	0.05	7	4	1.58
Above 150	9	20	(df=1)	12	17	(df=1)
Body mass index						
Upto 19	6	12	0.17	6	12	2.63
Above 19	6	16	(df=1)	13	9	(df=1)

Onset of premenstrual syndrome						
Upto12hrs	1	4	0.27	3	2	0.35
Above 12hrs	11	24	(df=1)	16	19	(df=1)
Duration of menstrual flow						
Upto 5 days	1	3	0.052	1	3	0.90
Above 5 days	11	25	(df=1)	18	18	(df=1)

It could be inferred from the table 9 that there was no significant association between the selected clinical variables namely age at menarche, weight in kilograms, height in centimeter, body mass index, onset of premenstrual syndrome and the duration of menstrual flow with the level of premenstrual syndrome. Hence the null hypothesis Ho_3 was retained.

Summary

This chapter dealt with the analysis and the interpretation of the data collected by the researcher. From the analysis it can be inferred that the level of premenstrual syndrome was low after therapy in the experimental group than the control group. Thus it shows that the aromatherapy was effective in reducing the level of premenstrual syndrome among the B.Sc Nursing students.

CHAPTER V

DISCUSSION

Statement of the Problem

A Quasi Experimental Study to Assess the Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students at Selected Colleges, Chennai.

Objectives of the Study

1. To assess the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
2. To assess the effectiveness of aromatherapy by comparing the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
3. To determine the level of satisfaction regarding aromatherapy in experimental group of B.Sc Nursing students.
4. To find the association between the selected demographic variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
5. To find the association between the selected clinical variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

The discussion is presented under the following headings

- Demographic variables of B.Sc Nursing students.
- Clinical variables of B.Sc Nursing students.

- Level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
- Effectiveness of aromatherapy upon premenstrual syndrome among B.Sc Nursing students.
- Level of satisfaction regarding aromatherapy in experimental group of B.Sc Nursing students.
- Association between the selected demographic variables and the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
- Association between the selected clinical variables and the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Demographic variables of B.Sc Nursing students

The study finding reveals that majority of the students were between the age group of 20-21years (90%, 97.5%), were non vegetarian (80%, 72.5%), most of them were Christians (55%, 62.5%) with monthly family income between Rs.10,001-15,000 (57.5%, 57.5%) and had the family history of premenstrual syndrome (57.5%,80%) in control and experimental group respectively.

The finding was supported by Tabassum (2005) who conducted the study on incidence of premenstrual syndrome in young adults, which infers that premenstrual syndrome is common in young adults because of changing physiological and psychological pattern in the body, so as a health care professionals we should adopt the

comprehensive measures to reduce the incidence of premenstrual syndrome and improve the quality of life.

Clinical variables of B.Sc Nursing students

In the present study, significant percentage (40%, 52.5%) of B.Sc Nursing students had the onset of premenstrual syndrome before 49-72 hours of menstruation, majority of the students attained menarche at the age of 12-13years (57.5%, 90%) and had body weight within the range of 40-52 kg (85%, 72.5%), most of the students were between the height of 151-160 cm (50%, 55%), had the body mass index within the range of 20-24 (50%-55%) and had 4-5 days (62.5%, 77.5%) of menstrual flow in control and experimental group respectively.

This finding was supported by Ellen (2010) concluded the study to find out the onset of premenstrual syndrome. He concluded that premenstrual syndrome more common during three to four days before the onset of menstruation, because that is the end stage of luteal phase during that time the estrogen and the progesterone level decreases, due to the disturbances in the hormones produces more symptoms, so it is called as late luteal phase dysphoric disorder.

Level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

The study findings reveals that majority of the B.Sc Nursing students in control group were experiencing severe level of premenstrual syndrome in pre test and post test respectively (75%, 72.5%). Whereas in experimental group most of the students had

severe level of premenstrual syndrome (72.5%) in pre test. However after administration of aromatherapy, significant percentage (50%) of the B.Sc Nursing students had mild level of premenstrual syndrome. This could be attributed to the effectiveness of aromatherapy upon premenstrual syndrome.

The above findings of the study is supported by Bindusa, (2011) who revealed that evening prime rose oil has been used with successful results in women with premenstrual syndrome. It is high in omega 6 fatty acid and gamma linolenic acid, which is readily converted in the body to prostaglandin E1 which maintains the level of hormones and in turn reduces the occurrence of premenstrual syndrome.

Thus the researcher concluded that severe level of premenstrual syndrome can be brought to mild if appropriate measures are taken. Hence all the nurses must be trained regarding complimentary therapies, so that they can disseminate the knowledge to public and create awareness among them.

Effectiveness of aromatherapy upon premenstrual syndrome among B.Sc Nursing students

Findings of the study reveals that there was no significant difference in the mean and standard deviation level of premenstrual syndrome (M=27.6, 27.5, S.D=2.3, 2.3) before and after administration of aromatherapy in control group of B.Sc Nursing students. Whereas experimental group showed a significant difference ($p<0.001$) in the mean and standard deviation level of premenstrual syndrome (M=28.2, 9.1, SD=5.2, 6.6) before and after administration of aromatherapy and it shows the effectiveness of aromatherapy upon premenstrual syndrome. Hence the null hypothesis H01 was rejected.

This was supported by the research conducted by Brush, et al.(2010) to evaluate the effectiveness of primrose oil on management of premenstrual syndrome, based on self report scale the researcher concluded that among the participants (61%) of them had complete relief of premenstrual symptoms, (16%) of them had partial relief of symptoms. This can be attributed to the effectiveness of aromatherapy.

Level of satisfaction regarding aromatherapy in experimental group of B.Sc Nursing students

The level of satisfaction of the aromatherapy indicated from the analysis that majority of the B.Sc Nursing students in the experimental group were highly satisfied (85%) in aspects related to researcher, regarding the method of administration of aromatherapy (97.5%) and related to the effectiveness of aromatherapy (90%) respectively.

This finding indicated that the administration of aromatherapy is effective in reducing the level of premenstrual syndrome, since it is easy to administer, harmless and cost effective. So the midwives can use aromatherapy for the students with premenstrual syndrome without any harm.

Association between the selected demographic variables and the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

There was a significant association between the selected demographic variables like family history and the level of premenstrual syndrome ($\chi^2 = 3.95$, df = 1) at $p < 0.05$ before therapy in control group of, but no significant association was found with other

demographic variables namely age in years, religion and monthly family income in rupees with the level of premenstrual syndrome in control and experimental group of B.Sc Nursing students. Hence the null hypothesis Ho_2 was partially rejected with regard to family history of premenstrual syndrome.

The family history of premenstrual syndrome has influence over the occurrence of premenstrual syndrome which was supported by Rasheed (2003) who highlighted that maternal history of premenstrual syndrome exerts a significant influence on the occurrence of premenstrual syndrome.

Association between the selected clinical variables and the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students

No significant association between the selected clinical variables namely age at menarche, weight in kilograms, height in centimeter, body mass index, onset of premenstrual syndrome and the duration of menstrual flow with the level of premenstrual syndrome in both control and experimental group of B.Sc Nursing students. As most of the students experienced severe level of premenstrual syndrome, so no statistics could be applied to find the association between the selected clinical variables and the level of premenstrual syndrome. Hence the null hypothesis Ho_3 was retained.

Summary

This chapter has dealt with the objectives of the study, major findings of the demographic and clinical variables, level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students, comparison of mean and standard deviation level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students, association between the selected demographic variables and clinical variables with the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group and the level of satisfaction regarding aromatherapy among B.Sc Nursing students.

CHENNAI VI

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATIONS

Summary

The heart of the research project lies in reporting the findings. This is the most creative and demanding part of the study. This chapter gives a brief account of the present study, suggestions of the study and nursing implications. The present study was intended to analyze the effectiveness of aromatherapy upon premenstrual syndrome in B.Sc Nursing students.

Objectives of the Study

1. To assess the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
2. To assess the effectiveness of aromatherapy by comparing the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.
3. To determine the level of satisfaction regarding aromatherapy in experimental group of B.Sc Nursing students.
4. To find the association between the selected demographic variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

5. To find the association between the selected clinical variables and the level of the premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Null Hypotheses

Ho_1 There will be no significant difference in the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Ho_2 There will be no significant association between the level of premenstrual syndrome and selected demographic variables before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Ho_3 There will be no significant association between the level of premenstrual syndrome and selected clinical variables before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

Major Findings of the Study

Demographic variables of B.Sc Nursing students

The study finding reveals that majority of the students were between the age group of 20-21years (90%, 97.5%), non vegetarian (80%, 72.5%), most of them were Christians (55%, 62.5%) with monthly family income between Rs.10, 001-15,000 (57.5%, 57.5%) and had the family history of premenstrual syndrome (57.5%,80%) in control and experimental group respectively.

Clinical variables of B.Sc Nursing students.

In the present study significant percentage (40%, 52.5%) of B.Sc Nursing students had the onset of premenstrual syndrome before 49-72 hours of menstruation, majority of the students attained menarche at the age of 12-13years (57.5%,90%) and had body weight within the range of 40-52 kg (85%,72.5%), most of the students were between the height of 151-160 cm (50%,55%), had the body mass index within the range of 20-24 (50%-55%) and had 4-5 days (62.5%,77.5%) of menstrual flow in control and experimental group respectively.

Level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

The study findings reveals that majority of the B.Sc Nursing students in control group were experiencing severe level of premenstrual syndrome in pre test and post test respectively (75%,72.5%). Whereas in experimental group most of the students had severe level of premenstrual syndrome (72.5%) in pre test. However after administration of aromatherapy, significant percentage (50%) of the B.Sc Nursing students had mild level of premenstrual syndrome. This could be attributed to the effectiveness of aromatherapy.

Effectiveness of aromatherapy upon premenstrual syndrome among B.Sc Nursing students.

Findings of the study reveals that there was no significant difference in the mean and standard deviation level of premenstrual syndrome (M=27.6, 27.5, S.D=2.3, 2.3)

before and after administration of aromatherapy in control group of B.Sc Nursing students. Whereas experimental group showed a significant difference ($p < 0.001$) in the mean and standard deviation level of premenstrual syndrome (M=28.2, 9.1, SD=5.2, 6.6) before and after administration of aromatherapy and it shows that aromatherapy proved to be effective upon premenstrual syndrome. Hence the null hypothesis H_{01} was rejected.

Level of satisfaction regarding aromatherapy in experimental group of B.Sc Nursing students.

The percentage distribution of level of satisfaction on aromatherapy indicated that majority of the B.Sc Nursing students in the experimental group were highly satisfied (85%) in aspects related to researcher, regarding the method of administration of aromatherapy (97.5%) and related to the effectiveness of aromatherapy (90%) respectively.

Association between the selected demographic variables and the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

The study findings reveal that there was a significant association between the selected demographic variables like family history and the level of premenstrual syndrome before therapy ($\chi^2 = 3.95$, df = 1) at $p < 0.05$ in control group , but no significant association was found with other demographic variables namely age in years, religion, monthly family income in rupees and dietary pattern with the level of premenstrual syndrome in control and experimental group of B.Sc Nursing students.

Hence the null hypothesis Ho_2 was partiall rejected with regard to family history of premenstrual syndrome.

Association between the selected clinical variables and the level of premenstrual syndrome before and after administration of aromatherapy in control and experimental group of B.Sc Nursing students.

It was found that there was no significant association between the selected clinical variables namely age at menarche, weight in kilograms, height in centimeter, body mass index, onset of premenstrual syndrome and the duration of menstrual flow with the level of premenstrual syndrome in both control and experimental group of B.Sc Nursing students. Thus it could be interpreted that clinical variables has no influence on the level of premenstrual syndrome. Hence the null hypothesis Ho_3 was retained.

Conclusion

This study shows that aromatherapy was effective in reducing the premenstrual syndrome. The experimental group of B.Sc Nursing students who received aromatherapy had decreased level of premenstrual syndrome and was highly satisfied with the therapy. Aromatherapy is a complimentary therapy and has no adverse effects on the students, hence the midwives could be encouraged to use this as an appropriate measure for premenstrual syndrome.

Implications

The findings of the study recommended the implications on nursing practice, nursing administration and nursing research.

Nursing practice

The B.Sc Nursing students of the experimental group felt mild symptoms and improved comfort with the use of aromatherapy than the control group proving it to be effective to use. It was identified from the study findings that, aromatherapy is effective in reducing the level of premenstrual syndrome and enhancing comfort during menstruation. In context the nurse midwife takeover the awareness program about the new modalities in the management of premenstrual syndrome.

Nursing education

The nursing profession has a long history of viewing and caring for individuals in a holistic manner. A national conference conducted by National Institutes of Alternative and Complementary Medicine and the Uniformed Services University of Health Sciences concluded that nursing and medical education should include information about complementary and alternative therapies. Nurse educators should consider the inclusion of complementary and alternative therapies in nursing curricula with increasing frequency and motivation by major part of the public for the use of these therapies. Inherent in the nurse's role is the ability to assess, intervene and evaluate preventive, supportive, and restorative functions of a patient's physical, emotional, mental and spiritual domains. This should be emphasized to the nursing students through educating them about the various therapies that helps the patients in providing care to meet the above aspects.

Nursing administration

With the advent of various technologies in the field of nursing, nurses are expected to be skillful in various aspects of providing care for which the student nurse has

to be trained in it through their education. Thus it is the responsibility of the nurse administrators to include the concept of alternative and complementary therapies in the nursing curricula. Nursing staffs and the nursing students should be encouraged by the nurse administrators to learn various nursing modalities in caring patients and could conduct certifying courses like conference, in service education, workshop which would help them to practice alternative and complementary therapies.

Nursing research

The competence of a registered nurse to perform the skills of complementary and alternative therapies begins with nursing education and ends with nursing practice which requires an evidence to give assurance that the knowledge and practice gained by the nurse are safe and provides comfort for the patients. Disseminate findings via conferences seminars publications in professional national and international journals, world wide website. Thus major research has to be promoted and conducted by the nurse researchers to prove the effectiveness of alternative and complementary therapies in nursing profession.

Recommendations

- The same study can be conducted with larger number of samples.
- A comparison can be made between adolescents and adults.
- The same study can be conducted at different settings.
- A comparison can be made between different types of alternative and complementary therapies.

Limitations

- The study findings cannot be generalized due to small sample size.
- Random sampling was not possible due to practical difficulties.
- Quasi experimental study could not be conducted as there are chances of contamination effects among samples.

REFERENCES

Alimentazeri, S. (2012). Prevalence of Premenstrual Syndrome. **Internationals Journal of B.Sc Nursing Practice**, 37(1), 150 – 158.

Anderson, F.W., & Johnson, C.T. (2005). Complementary and Alternative Medicine In Obstetrics & Gynecology. **An International Journal of Obstetrics & Gynecology,** 91(2), 116 – 24.

Anandhalakshmi , et al.(2011). Prevalence of Premenstrual Syndrome, SRM University, **Journal on Health Quality Outcome**. 8(16), 213 – 216.

Brent, B.A. (2011). Effects of Aromatherapy, Retrieved on June 6, 2012 from http://www.americanscienceorg.

Brush, et al. (2010). Management of Premenstrual Syndrome. **American Journal of Obstetrics and Gynecology**, 150(2), 363 – 369.

Bhakti, R. (2011). Prevalence of premenstrual syndrome. Surya Fertility Centre. Retrieved on Oct 14, 2012 from http://www.yogapoint.com.

Bruce, R.C, et al. (2011).**Principle of Internal Medicine.(**15th ed.).New Delhi. McGraw-Hill Publishers, 295–296.

Carroll, D. (2011). Effect of Aromatherapy on Menstrual Discomfort. **Journal on Complementary Therapy**, 92(10), 105 – 110.

Dante.G., & Facchinetti,F. (2010). Management of Premenstrual Syndrome. **Asian Journal of B.Sc Nursing Practice**, 2(39), 110 – 115.

Dutta,D.C. (2005).**Text Book of Obstetrics**.(6th ed.).Calcutta: New Central Book Agency.

Ernst, E. A. (2006). **Desktop Guide to Complementary and Alternative Medicine.** (7th ed.). London: Harcourt Publishers.

George,F. (2007). Effect of Prime Rose Oil. **Bandolier Journal on Complementary Medicine,** 4(15), 116 – 120.

Han, S.H. et al. (2012). Effect of Aromatherapy Upon Menstrual Cramps.**International Journal of B.Sc Nursing Practice,** 110 – 114.

Josi, et al. (2011).Prevalence of Premenstrual Syndrome. **Journal on Midlife Health,** 1(14), 203 – 205.

Kitamura, M. (2012). Effect of Premenstrual Syndrome. **Asian Journal of B.Sc Nursing Practice**, 2(39), 110 – 115.

Kathryn, E. (2010).Effect of Aromatherapy. **A Journal on Alternative and Complementary Medicine**, 9(4), 534 – 545.

Kim, J.et al. (2008). Effect of Aromatherapy. **Journal of Alternative and Complementary Medicine.** 6(10), 95 – 101.

Mohin Delera, et al. (2011). Impact of Premenstrual Syndrome on Quality of Life. **Journal on Health Quality life Outcome**, 10(1186), 1477 – 1480.

Polit, P.F., & Beck,C.T. (2010). **B.Sc Nursing Research**. (8th ed.). Philadelphia: Lippincott Williams and Wilkins.

Prabakara, G.N. (2006). **Biostatistics**. (1st ed.). New Delhi : Jaypee Brothers Medical Publishers.

Sampalis, F. (2006). Effect of Neptune Krill Oil on Premenstrual Syndrome. **Journal on Alternative and Complementary Medicine,** 12(3), 207 – 227.

Sharma, A. et al. (2012). Problems Related to Menstruation. Asian Journal of Public Health, 1(24), 136 – 150.

Surya Fertility Centre. (2011). Prevalence of premenstrual Syndrome. **Indian Journal of Community Medicine**, 18(2), 110 – 114.

Taavoni. (2012).Effect of Aromatherapy Massage Retrieved on Oct 15, 2012 from http://www.pubmed.com

Thakre, et al. (2008). Problems Related to Menstruation. **Indian Journal of Pediatrics,** 119(1), 92 – 95.

Renee , J.R. (2003). **Textbook of Pediatrics**. (17th ed.). Edited by Richard E. Behrman et al.Philadelphia: Saunders Publications, 667–70.

Robert, R. W, et al. (2003). **In Cecil Textbook of Medicine .(22nd** ed.). Edited by Lee Goldman et al. Philadelphia: Saunders publications, 1513–20.

Unpublished Master of Thesis The Thamilnadu Dr.M.G.R Medical University, Chennai

Wang, et al. (2011).Prevalence of Premenstrual Syndrome Among Reproductive Age Group, Retrieved on Oct 15, 2012 from http://www.scribd.com.

APPENDIX- I

LETTER SEEKING PERMISSION FROM THE SETTING

Apollo College of Nursing
(Recognised by the Indian Nursing Council and Affiliated to the Tamil Nadu Dr. M.G.R. Medical University, Chennai)

CO/0419/12 ***26.06.2012***

To

Ms.Pandiselvi.R
M.Sc (N) II year
Apollo College of Nursing
Chennai – 600 095.

Sub.: To grant permission for research study – Reg.

Greetings! *With reference to your letter, you are permitted to conduct a study on* ***"An experimental study to assess the effectiveness of aroma therapy upon premenstrual syndrome in B.Sc nursing students at selected colleges, Chennai"****.*

So I kindly request your goodselves to permit me to conduct study in your esteemed institution.

Thanking You,

Dr. LATHA VENKATESAN
PRINCIPAL

IS/ISO 9001:2000

Vanagaram to Ambattur Main Road, Ayanambakkam, Chennai - 600 095.
Ph. : 044 - 2653 4387 Tele fax : 044 - 2653 4923 / 044- 2653 4386

APPENDIX - II

LETTER SEEKING PERMISSION TO USE STUDY TOOL

YAHOO! INDIA MAIL Classic

Permission Letter to conduct a Study - Reg

Saturday, 13 October, 2012 12:04 PM

From: "Pandi Selvi" <pandiselvi_muthu@yahoo.in>

To: mst@mcmaster.ca

I am Pandi Selvi M.Sc (N) II Year student of Apollo College of Nursing, Chennai, India. I kindly request you to permit me to use the Premenstrual syndrome scale for my thesis. "A Quasi Experimental study to assess the Effectiveness of aroma therapy upon premenstrual syndrome in B.Sc (N) Students at Selected Colleges, Chennai."

Thanking you

yours Sincerely,

(R.Pandi Selvi)
M.Sc (N) II Year

APPENDIX – III

REQUEST FOR CONTENT VALIDITY

LETTER REQUESTING OPINIONS AND SUGGESTIONS OF EXPERTS FOR ESTABLISHING CONTENT VALIDITY OF RESEARCH

From
Ms.Pandiselvi.R
M.Sc., (Nursing) II Year,
Apollo College of Nursing,
Chennai-95.
To
Through Proper channel
Dr. Latha Venkatesan,
Principal,
Apollo College of Nursing.

Sub: Request for opinions and suggestions of experts for content validity of Research tool.

Respected Sir/ Madam

Iam a postgraduate student of the Apollo College of Nursing. I have selected the below mentioned topic for research project to be submitted to The Tamil Nadu Dr. M.G.R Medical University, Chennai as a partial fulfilment of Masters of Nursing Degree.

TITLE OF THE TOPIC:

"A Quasi Experimental Study to Assess the Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students at Selected Colleges, Chennai".

With regards may I kindly request you to validate my tool for its appropriateness and relevancy I am enclosing the Back ground of the study, Need for the study, Statement of the problem, Objectives of the study, Demographic variable proforma, Obstetric variable proforma, Modified breast feeding assessment tool, Knowledge assessing questionnaire, Satisfaction scale on Level of satisfaction of mothers regarding breast crawl technique for your reference. I would be highly obliged and remain thankful for your great help if you could validate and send it as soon as possible.

Thanking You,

Yours Sincerely,

(Ms. Pandiselvi.R)

APPENDIX - IV

CERTIFICATE FOR CONTENT VALIDITY TO WHOMSOEVER IT MAY CONCERN

This is to certify that tools and content for the research study developed by II year M.Sc. (Nursing) student of Apollo College of Nursing for her dissertation "A Quasi Experimental Study to Assess the Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students at Selected Colleges, Chennai, was validated.

Signature of the Expert

APPENDIX – V

LIST OF EXPERTS FOR CONTENT VALIDITY

1. **Dr. Latha Venkatesan, M.Sc (N)., M.Phil(N)., Ph.D(N).,**
   Principal cum Professor,
   Apollo college of Nursing,
   Chennai-95

2. **Prof. Lizy Sonia, A., M.Sc. (N)., PhD (N).,**
   Vice Principal,
   HOD of Medical Surgical Nursing,
   Apollo College of Nursing,
   Chennai-95.

3. **Prof. Vijayalakshmi, K., M.Sc. (N)., PhD (N).,**
   HOD of Mental Health Nursing,
   Apollo College of Nursing,
   Chennai-95

4. **Prof. Nasa Sathya Satchi., M.Sc. (N).,**
   HOD of Child Health Nursing,
   Apollo College of Nursing,
   Chennai-95

5. **Mrs. Pappy Yuvarani., M.Sc. (N).,**
   Reader,
   Department of Obstetrics and Gynaecological Nursing,
   Apollo College of Nursing,
   Chennai-95

6. **Mrs. Saraswathy, M.Sc. (N).,**
   Lecturer,
   Department of Obstetrics and Gynaecological Nursing,
   Apollo College of Nursing,
   Chennai-95

7. **Miss. Kavitha, M.Sc. (N).,**
   Lecturer,
   Department of Obstetrics and Gynaecological Nursing,
   Apollo College of Nursing,
   Chennai-95

APPENDIX - VI

ETHICAL COMMITTEE CLEARANCE LETTER

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

30th August 2012

To,

Ms. Pandi Selvi R,
2nd Year M.SC (Nursing),
Department of Obstetrics and Gynecology Nursing,
Apollo College of Nursing,
Chennai.

Ref: Effectiveness of Aromatherapy on Premenstrual Syndrome.

Sub: Approval of the above referenced project and its related documents.

Dear Ms. Pandi Selvi R,

Ethics Committee-Apollo Hospitals has received the following document submitted by you related to the conduct of the above-referenced study.

- Project proposal.
- Participant Consent Form.

The Ethics Committee-Apollo Hospitals reviewed and discussed the study proposal documents submitted by you related to the conduct of the above referenced study at its meeting held on 29th August 2012.

The following Ethics Committee Members were present at the meeting held on 29th August 2012.

Name	Profession	Position in the committee
Mr. S. S. Narayanan	Ethicist	Chairman
Dr. Rema Menon	Clinician	Member Secretary
Dr. Radha Rajagopalan	Clinician	EC-Member
Dr. Krishnakumar	Clinician	EC-Member
Dr. Vijaya Kumar	Clinician	EC-Member
Dr. Clive Fernandes	Consultant Clinical Pharmacologist	Basic Medical Scientist

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 3333 Extn : 6008, 91 - 44 - 2829 5465 Extn : 6639 Fax : 91 - 44 - 2829 4449
E - Mail : ecapollochennai@gmail.com

Ethics Committee

Apollo HOSPITALS
TOUCHING LIVES

Dr. Nalini Roa	Social Worker	EC-Member
Ms. N. Suseela	Retired English Teacher	Layperson
Ms. Maimoona Badsha	Lawyer	Lawyer
Dr. Paul Dilipkumar	Clinician	EC-Member
Dr. V. Balaji	Clinician	EC-Member
Dr. M. A. Raja	Consultant Medical Oncologist	EC-Member

After due ethical and scientific consideration, the Ethics Committee has approved the above presentation submitted by you.

The EC review and approval of the report is only to meet their academic requirement and will not amount to any approval of their conclusions/recommendations as conclusive, deserving adoption and implementation, in any form, in any health care institution.

The Ethics Committee is constituted and works as per ICH-GCP, ICMR and revised Schedule Y guidelines.

With Regards,

Dr. Rema Menon,
Ethics Committee-Member Secretary,
Apollo Hospitals, Chennai,
Tamil Nadu, India.

Date: 30/8/12

Dr. REMA MENON
MEMBER SECRETARY
ETHICS COMMITTEE, APOLLO HOSPITALS
APOLLO HOSPITALS ENTERPRISE LIMITED
CHENNAI-600 006, TAMILNADU

Apollo Hospitals Enterprise Limited
21, Greams Lane, Off Greams Road, Chennai - 600 006
Tel : 91 - 44 - 2829 3333 Extn : 6008, 91 - 44 - 2829 5465 Extn : 6639 Fax : 91 - 44 - 2829 4449
E - Mail : ecapollochennai@gmail.com

APPENDIX - VII

CERTIFICATE FOR AROMATHERAPY TRAINING

Institute Of Alternative And Complimentary Therapy

Affiliated of Dr. Vijay's Health Science and Research Foundation

Chennai, India

S.No: SP-1021/12

ID No: EVK005/2012

Awards this

Certificate of Attendance

To

Ms.R.Pandiselvi a student of M.Sc.Nursing from Apollo College of Nursing, Chennai-95, has done her training in **Aromatherapy For Premenstrual Syndrome** for one week in our institute. The Project work entitled *"A Quasi Experimental Study to Assess the Effectiveness of aromtherapy Upon premenstrual syndrome in B.Sc (Nursing) Students at Selected College, chennai"*.

Given this 6th day of June,2012 , Chennai

Lecturer

Course Director

Dr.E.VIJAYAKUMAR, MPT(Ortho).,MD(Acu).,DYT.,FIMT.,MIAP.

President/Founder

Institute Of Alternative And Complimentary Therapy
Affiliated to Dr. Vijay's Health Science and Research Foundation
Chennai, India

Date: 06.06.2012

Whomsoever may be concern

This is to certify that **Ms.R.Pandiselvi** a student of M.Sc.Nursing from Apollo College of Nursing, Chennai-95, has done her training in **Aromatherapy For Premenstrual Syndrome** for one week in our institute. The Project work entitled *"A Quasi Experimental Study to Assess the Effectiveness of aromtherapy Upon premenstrual syndrome in B.Sc (Nursing) Students at Selected College, chennai"*. During that period, she had been trained in that topic, she acquitted herself well.. She was prompt in her duty and her conduct has been good.

INSTITUTE OF ALTERNATIVE AND COMPLIMENTARY THERAPY Since 2005

Dr.E.VijayaKumar., MPT., MD(Acu)., MIAP., DYT., FIMT

Address: 42/3, G.N.G Street, Varadharajapuram, Amabttur, Chennai -53, Mobile: +91 99406 79698

APPENDIX - VIII

RESEARCH PARTICIPANT CONSENT FORM

Dear Participant,

I am a M.Sc (N) student of Apollo College of Nursing, Chennai. As a part of my study, a research on **"A Quasi Experimental Study to Assess the Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students at Selected Colleges, Chennai"** was selected to be conducted. The findings of the study will be helpful in designing intervention for premenstrual syndrome among nursing students.

I hereby seek your consent and co-operation to participate in the study. Please be frank & honest in your responses. The information collected will be kept confidential and anonymity will be obtained.

Signature of the Investigator

I …… hereby consent to participate in the study.

Place:

Date: **Signature of Participant**

APPENDIX - IX

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation **"A Quasi Experimental Study to Assess the Effectiveness of Aromatherapy upon Premenstrual Syndrome in B.Sc Nursing Students at Selected Colleges, Chennai"** by Ms.Pandiselvi.R, M.sc (N) II year, Apollo College of Nursing was edited for English language appropriateness by

Signature

V. USHA
Asst. Prof. of English
Guru Nanak College
Velachery, Chennai - 600 042.

APPENDIX - X

DEMOGRAPHIC VARIABLE PROFORMA

Purpose

This proforma is used to measure the demographic variables such as age, religion, monthly family income, dietary pattern and family history of pre-menstrual syndrome.

Instructions

The researcher will collect data by interviewing the participants and place a tick (✓) mark as against appropriate responses.

Sample number ☐

1. Age in years

1.1. ≤ 19 ☐

1.2. 20 – 21 ☐

1.3. ≥ 22 ☐

2. Religion

2.1. Hindu ☐

2.2. Christian ☐

2.3. Muslim ☐

2.4. Others ☐

3. Monthly family income (in Rupees)

3.1. ≤ 10000 ☐

3.2. 10001-15000 ☐

3.3. 15001 -19,999 ☐

3.4. ≥ 20000 ☐

4. Dietary pattern

4.1. Vegetarian ☐

4.2. Non vegetarian ☐

4.3. Ova vegetarian ☐

5. Family history of premenstrual syndrome

5.1. Present ☐

5.2. Absent ☐

APPENDIX - XI

CLINICAL VARIABLE PROFORMA

Purpose

This proforma is used to measure the clinical variables such as age at menarche, weight in kilograms, height in centimeter, body mass index, onset of premenstrual syndrome, duration of menstrual flow.

Instructions

The researcher will collect data by interviewing the participants and place a tick (✓) mark as against appropriate responses.

1. Age at menarche (in years)

1.1. ≤ 11 ☐

1.2. 12-13 ☐

1.3. 14-15 ☐

1.4. ≥ 16 ☐

2. Weight in kg

2.1. ≤ 40 ☐

2.2. 41-46 ☐

2.3. 47-52 ☐

2.4. 53-58 ☐

2.5. ≥ 59 ☐

3. Height in cm

3.1. ≤ 140 ☐

3.2. 141-150 ☐

3.3. 151-160 ☐

3.4. 161-169 ☐

3.5. ≥ 170 ☐

4. Body mass index in (kilogram/m2)

4.1. ≤ 19 ☐

4.2. 20-24 ☐

4.3. 25-29 ☐

4.4. ≥ 30 ☐

5. Onset of premenstrual syndrome

5.1. ≤ 12 hours before menstruation ☐

5.2. 13- 24 hours before menstruation ☐

5.3. 25-48 hours before menstruation ☐

5.4. 49-72 hours before menstruation ☐

5.5. ≥ 73 hours before menstruation ☐

6. Duration of menstrual flow (in days)

6.1. ≤ 3 ☐

6.2. 4 - 5 ☐

6.3. 6 - 7 ☐

6.4. ≥ 8 ☐

BLUE PRINT

RATING SCALE ON PREMENSTRUAL SYNDROME

S.No	Content	Item. No	Total items	Percentage
1	Physiological Symptoms	3,5,7,8,9	5	50%
2	Psychological Symptoms	1,2,4,6,10	5	50%
		Total	**10**	**100%**

APPENDIX – XII

RATING SCALE ON PREMENSTRUAL SYNDROME

I am going to ask about the premenstrual symptoms you are experiencing toady. (Based on the patient's response, circle appropriate score).

1. How would you rate your irritability or hostility today? This may include being irritable, hostile, having a negative attitude, having being angry or short fused, yelling and screaming at others.

   0 **Not irritable.**

   1 **Doubtful**, trivial. Not reported without direct questioning.

   2 **Mild.** Occasional outburst of anger.

   3 **Moderate**. Feeling outburst of irritable behavior.

   4 **Severe**. Severe interference between herself and significant.

2. How would you rate your tension today? This may include being tense, restless, jittery, high-strung or unable to relax.

   0 **Not tense.**

   1 **Doubtful,** trivial. Not reported without direct questioning.

   2 **Mild.** Occasional tension.

   3 **Moderate.** Feeling tense or jittery and this behavior is evident.

   4 **Severe.** Feeling constantly tense and upset.

3. How would you rate your efficiency today? This may include experiencing decreased efficiency or being easily fatigued?

   0 **No disturbance**.

   1 **Doubtful**, trivial. Not reported without direct questioning.

   2 **Mild**. Somewhat reduced efficiency.

   3 **Moderate**. Easily fatigued, gets much less done than usual.

   4 **Severe**. Fatigue causes serious interference with functioning.

4. How would you rate your mood our depression today? (dysphoria). This may include feeling sad, depressed blue or moody...

   0 **No moodiness/not depressed.**

   1 **Doubtful**, trivial. Not reported without direct questioning.

   2 **Mild.** Occasional tension.

   3 **Moderate**. Feeling tense or jittery and this behavior is evident.

   4 **Severe**. Feeling constantly tense and upset.

5. How would you rate your motor coordination today? This may include feeling clumsy, prone to accident and lowered motor coordination...

   0 **No disturbance**.

   1 **Doubtful**, trivial. Not reported without direct questioning.

   2 **Mild,** Feels clumsy or awkward

   3 **Moderate,** Frequent accidents while doing simple housework or on the job.

   4 **Severe,** Severe impairment in muscle coordination

6. How would you rate your mental and cognitive functioning today? This may include forgettable, having poor concentration, being confused…

   0 **No disturbance**.

   1 **Doubtful**, trivial. Not reported without direct questioning.

   2 **Mild**. Slight forgetfulness and distractibility.

   3 **Moderate**. Performance impaired by poor concentration, cognitive disorganization, forgetfulness, etc. cognitive capacity, poor judgment, leading to regrettable decisions.

   4. **Severe**. Marked deterioration in thinking capacity or poor judgment leading to regrettable decisions.

7. How would you rate your eating habit today?

   0 **No change.**

   1 **Mild,** Mild increase in food intake, eating at odd, irregular hours, mostly snacks and sweets. Controllable cravings for sweets, chocolate, etc.

   2 **Severe,** Obvious, marked increase including uncomfortable cravings for sweets, chocolate etc.

8. How would you like to rate your sexual drive and activity today?

   0 **No change**.

   1 **Mild**, Mild increase/decrease.

   2 **Severe**, Obvious change in sexual drive and definite change in sexual behavior increase/decrease.

9. How would you rate your physical symptoms today? This may include painful or tender breasts, swelling, water retention, weight gain, headaches, low back pain...

   0 **No disturbances**.

   1 **Doubtful**, trivial. Not reported without direct questioning.

   2 **Mild.** Some symptoms and an increased awareness of bodily change.

   3 **Moderate**. Obvious change and complaints.

   4 **Severe**, In-capacitating symptoms including pain and discomfort. Marked water retention and edema. Weight gain more than 5lbs.

10. How would you rate social impairment today? This may include avoidance of social activities are interactions with family at home, at work, at school etc...

    0 **No social impairment.**

    1 **Doubtful,** trivial. Not reported without direct questioning.

    2 **Mild.** Some avoidance of social activity.

    3 **Moderate.** Obvious impairment of social activity, mainly noticeable at home with family.

    4 **Severe.** Marked impairment, withdrawal or isolation from most social interaction including those at work or school.

SCORING KEY

Key		**Scoring**
Severe	-	4
Moderate	-	3
Mild	-	2
Doubtful	-	1
No disturbance	-	0

The total score is converted in to percentage and graded as given below:

SCORING INTERPRETATION

Scoring	**Percentage**	**Interpretation**
28-36	76 – 100%	Severe
19-27	51 – 75%	Moderate
10-18	26 – 50%	Mild
1-9	1– 25%	Doubtful
0	0%	No disturbance

BLUE PRINT

RATING SCALE ON LEVEL OF SATISFACTION OF STUDENTS

REGARDING AROMATHERAPY

S.No	Content	Item. No	Total items	Percentage
1	Characteristic of researcher	1,2,3,4	4	28.5%
2	Method of administration of aromatherapy	5,6,7,8,9,10	6	43%
3	Effectiveness of aromatherapy	11,12,13,14,	4	28.5%
Total			**14**	**100%**

APPENDIX - XIII

RATING SCALE ON LEVEL OF SATISFACTION OF STUDENTS REGARDING AROMATHERAPY

Purpose

This rating scale is designed to assess the level of satisfaction of the students regarding the researcher, method of administration of aromatherapy and the effectiveness of therapy. The researcher records this after the therapy.

Instructions

There are items given below kindly read the items. Response extent from highly satisfied to dissatisfied. Describe your satisfaction regarding aromatherapy. Give your options freely and frankly, the responses will be kept confidential.

S.No	Item	Highly satisfied 4	Satisfied 3	Dissatisfied 2	Highly dissatisfied 1
1	**Researcher** Are you satisfied with the explanation given by the researcher well in advance regarding aromatherapy?				
2	Are you satisfied with the availability of the researcher during needed time?				
3	Are comfortable with the approach of the researcher?				
4	Do you feel satisfied with the method of evaluation by the researcher?				

5	**Method of administration of aromatherapy** Are you satisfied with the timing of aromatherapy given when needed?				
6	Are you comfortable with the oil used in aromatherapy?				
7	Are you satisfied with the method of administration of aromatherapy				
8	Are you satisfied wtih the duration of administration of aromatherapy?				
9	Whether a frequency of administration of aromatherapy is satisfactory?				
10	Are you satisfied with the hygienic measures of the therapy?				
11	**Effectiveness of aromatherapy** Are you satisfied with negligible side effect of aromatherapy?				
12	Are you satisfied with the effectiveness of the therapy?				
13	Are you satisfied with the cost of the therapy?				
14	Whether you are ability to cope up with the pre menstrual syndrome is satisfactory?				

SCORING KEY

Key		Scoring
Highly satisfied	-	4
Satisfied	-	3
Dissatisfied	-	2
Highly Dissatisfied	-	1

The total score is converted in to percentage and graded as given below:

SCORING INTERPRETATION

Scoring	Percentage	Interpretation
43-56	76-100%	Highly Satisfied
29-42	51-75%	Satisfied
15-28	26-50%	Dissatisfied
≤ 14	≤ 25%	Highly Dissatisfied

APPENDIX – XIV

PLAGIARISM REPORT

	Plagiarism Detector - Originality Report
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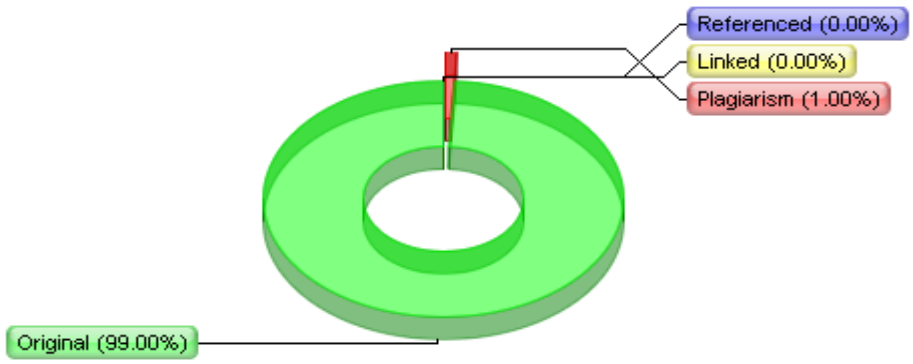

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Referenced 0% / Linked 0%

Original - 99% / 1% - Plagiarism

APPENDIX - XV

MANUAL ON AROMATHERAPY

Definition

Aromatherapy defined as the art and science of utilizing naturally extracted aromatic essences from plants to balance, harmonize and promote the health of body, mind and spirit, seeks to explore the physiological, psychological and spiritual realm of the individual's response to aromatic extracts as well as to observe and enhance the individual's innate healing process.

- Rainn

General Benefits of aromatherapy

- Healing properties
- Stimulates immune system
- Relieves cramps and spasm of the body.
- Increasing the alertness and energy level of the body.
- Aids In blood circulation.
- Drives away from cold symptoms.

Benefits of aromatherapy related to premenstrual syndrome

- Produce endorphins to reduce the pain perception and discomfort
- Maintain the hormonal balance especially the prolactin level
- Loosen the body muscles
- Relieving the stress and calm down the tensed mood
- Increasing the alertness and energy level of the body

Contra indications to aromatherapy

- Having polycystic ovarian disease
- Person who is used with homeopathic treatment
- Avoided for person with diabetes and kidney diseases.

Procedure of aromatherapy

- Evening prim rose oil 5 ml mixed with 10 ml of olive oil and the massage was provided over the lower abdomen.

Evening prim rose

Evening prim rose oil

Olive oil

- Aromatherapy massage was provided once in daily for three days with the duration of 15-20 minutes before the onset of menstruation especially in the morning hours between (6am -7am) for the students with premenstrual syndrome.

Steps for massage

Step 1

Step 2

Step 3

- The level of premenstrual syndrome assessed after three days of intervention.

Mode of action

Prim rose oil contains gamma linolenic acid that can be converted to a substance called prostaglandin-$E_{1,}$ which can control the excess level of prolactin and will maintain the fatty acid level and will reduce the level of premenstrual syndrome.

APPENDIX- XVI

DATA CODE SHEET

AGE - Age in years

1.1. ≤ 19

1.2. 20 – 21

1.3. ≥ 22

REL - Religion

2.1. Hindu

2.2. Christian

2.3. Muslim

2.4. Others

FI - Family income (in Rupees) per month

3.1. ≤ 10000

3.2. 10001-15000

3.3. 15001 -19,999

3.4. ≥ 20000

DP - Dietary pattern

4.1. Vegetarian

4.2. Non vegetarian

4.3. Ova vegetarian

FHP - Family history of premenstrual Syndrome

5.1. Present

5.2. Absent

CG- Control group

EG- Experimental group

BT- Before therapy

AT- After therapy

LOS- Level of satisfaction

PMS- Premenstrual syndrome

AM - Age at menarche (in years)

1.1. ≤ 11

1.2. 12-13

1.3. 14-15

1.4. ≥ 16

WT - Weight in kg

2.1. ≤ 40

2.2. 41-46

2.3. 47-52

2.4. 53-58

2.5. ≥ 59

HT - Height in cm

3.1. ≤ 140

3.2. 141-150

3.3. 151-160

3.4. 161-169

3.5. ≥ 170

BMI - Body mass index in (kilogram/m2)

4.1. ≤ 19

4.2. 20-24

4.3. 25-29

4.4. ≥ 30

OPS - Onset of premenstrual syndrome

5.1. ≤ 12 hours before menstruation

5.2. 13- 24 hours before menstruation

5.3. 25-48 hours before menstruation

5.4. 49-72 hours before menstruation

5.5. ≥ 73 hours before menstruation

DM - Duration of menstrual flow (in days)

6.1. ≤ 3

6.2. 4 - 5

6.3. 6 - 7

6.4. ≥ 8

APPENDIX -XVII

MASTER CODE SHEET

CONTROL GROUP

CG	DEMOGRAPHIC VARIABLES					CLINICAL VARIABLES						LEVEL OF PMS	
	AGE	REL	FI	DP	FHP	AM	WT IN KG	HT IN CM	BMI	OPS	DM	BT	AT
1	1.2	2.2	3.1	4.1	5.2	1.3	2.2	3.1	4.2	5.3	6.2	19	15
2	1.2	2.1	3.1	4.2	5.2	1.3	2.1	3.2	4.1	5.1	6.2	30	30
3	1.2	2.1	3.1	4.2	5.2	1.3	2.4	3.4	4.2	5.5	6.2	11	25
4	1.2	2.2	3.2	4.2	5.2	1.2	2.3	3.3	4.2	5.2	6.3	21	14
5	1.2	2.1	3.1	4.2	5.2	1.3	2.2	3.3	4.2	5.1	6.1	32	32
6	1.2	2.2	3.2	4.2	5.1	1.3	2.1	3.4	4.1	5.1	6.2	14	19
7	1.2	2.1	3.1	4.2	5.2	1.2	2.2	3.2	4.2	5.1	6.1	25	30
8	1.2	2.1	3.4	4.2	5.2	1.2	2.2	3.2	4.2	5.4	6.4	15	23
9	1.2	2.1	3.2	4.2	5.2	1.2	2.2	3.3	4.1	5.4	6.2	29	11
10	1.2	2.2	3.2	4.2	5.1	1.3	2.2	3.3	4.1	5.4	6.2	25	30
11	1.2	2.1	3.4	4.2	5.2	1.3	2.1	3.3	4.1	5.4	6.2	30	21
12	1.3	2.2	3.4	4.2	5.1	1.2	2.2	3.3	4.2	5.1	6.2	20	30
13	1.2	2.1	3.2	4.2	5.1	1.3	2.1	3.2	4.1	5.1	6.2	30	22
14	1.2	2.1	3.2	4.2	5.1	1.2	2.1	3.3	4.1	5.1	6.2	27	29
15	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.3	4.1	5.1	6.2	30	30
16	1.2	2.1	3.4	4.2	5.1	1.3	2.4	3.4	4.2	5.1	6.2	30	31
17	1.3	2.2	3.2	4.1	5.1	1.3	2.4	3.3	4.2	5.2	6.1	31	28
18	1.2	2.1	3.2	4.2	5.2	1.2	2.3	3.4	4.1	5.1	6.3	28	32
19	1.2	2.1	3.1	4.1	5.2	1.3	2.3	3.3	4.2	5.1	6.2	32	30
20	1.2	2.2	3.1	4.2	5.1	1.3	2.2	3.3	4.2	5.4	6.1	30	32
21	1.2	2.2	3.1	4.2	5.1	1.1	2.1	3.2	4.1	5.1	6.2	31	19
22	1.2	2.2	3.2	4.2	5.2	1.2	2.2	3.2	4.2	5.4	6.1	30	27
23	1.2	2.1	3.2	4.2	5.1	1.3	2.2	3.2	4.1	5.1	6.3	29	29
24	1.2	2.1	3.1	4.2	5.2	1.3	2.1	3.3	4.1	5.4	6.1	32	30
25	1.2	2.2	3.2	4.2	5.1	1.3	2.2	3.2	4.2	5.4	6.2	31	31
26	1.2	2.2	3.4	4.2	5.2	1.2	2.5	3.4	4.2	5.1	6.1	31	31
27	1.2	2.1	3.4	4.2	5.1	1.2	2.3	3.2	4.2	5.1	6.2	31	30
28	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.3	4.1	5.3	6.2	30	31
29	1.2	2.1	3.2	4.1	5.2	1.2	2.2	3.3	4.1	5.5	6.3	29	28
30	1.2	2.2	3.4	4.1	5.1	1.2	2.2	3.3	4.1	5.4	6.2	28	29
31	1.2	2.2	3.2	4.2	5.1	1.2	2.4	3.5	4.1	5.4	6.2	31	33
32	1.2	2.2	3.2	4.1	5.1	1.3	2.2	3.3	4.1	5.4	6.3	28	28
33	1.2	2.1	3.2	4.2	5.1	1.2	2.3	3.3	4.2	5.4	6.3	29	32
34	1.2	2.2	3.2	4.1	5.2	1.2	2.3	3.3	4.2	5.4	6.2	31	30
35	1.2	2.2	3.2	4.1	5.2	1.2	2.2	3.2	4.2	5.4	6.2	19	32
36	1.2	2.2	3.3	4.2	5.1	1.2	2.3	3.4	4.1	5.5	6.2	32	27
37	1.2	2.1	3.2	4.1	5.1	1.2	2.4	3.5	4.1	5.4	6.3	30	31
38	1.3	2.2	3.2	4.2	5.1	1.2	2.2	3.3	4.1	5.4	6.2	32	29
39	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.2	4.2	5.5	6.2	28	28
40	1.2	2.2	3.2	4.2	5.1	1.2	2.2	3.2	4.2	5.4	6.2	33	33

EXPERIMENTAL GROUP

EG	DEMOGRAPHIC VARIABLES					CLINICAL VARIABLES						LEVEL OF PMS		LOS
	AGE	REL	FI	DP	FHP	AM	WT IN KG	HT IN CM	BMI	OPS	DM	BT	AT	
1	1.2	2.2	3.1	4.1	5.2	1.3	2.1	3.5	4.2	5.2	6.2	32	6	54
2	1.2	2.2	3.1	4.2	5.1	1.2	2.1	3.2	4.2	5.2	6.2	31	15	50
3	1.2	2.1	3.2	4.2	5.1	1.3	2.2	3.2	4.2	5.3	6.1	32	12	51
4	1.2	2.2	3.2	4.2	5.1	1.2	2.2	3.2	4.1	5.1	6.2	31	0	52
5	1.2	2.2	3.3	4.2	5.1	1.2	2.3	3.3	4.1	5.4	6.2	17	11	55
6	1.2	2.1	3.2	4.2	5.1	1.2	2.3	3.3	4.1	5.4	6.2	25	6	51
7	1.2	2.2	3.2	4.2	5.1	1.2	2.4	3.3	4.2	5.4	6.2	17	10	54
8	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.3	4.2	5.4	6.3	33	0	49
9	1.2	2.2	3.3	4.2	5.1	1.2	2.3	3.3	4.2	5.4	6.2	34	14	50
10	1.2	2.1	3.2	4.2	5.1	1.2	2.3	3.3	4.1	5.4	6.3	23	10	54
11	1.2	2.2	3.3	4.2	5.1	1.2	2.2	3.2	4.2	5.4	6.2	31	7	55
12	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.3	4.1	5.4	6.2	14	17	42
13	1.3	2.1	3.2	4.1	5.1	1.2	2.2	3.3	4.1	5.1	6.1	23	0	47
14	1.2	2.2	3.1	4.2	5.2	1.2	2.2	3.3	4.1	5.1	6.2	33	14	50
15	1.2	2.1	3.2	4.2	5.2	1.2	2.3	3.4	4.2	5.3	6.1	30	11	52
16	1.2	2.2	3.1	4.2	5.2	1.2	2.2	3.3	4.1	5.1	6.2	30	17	56
17	1.2	2.1	3.1	4.1	5.2	1.3	2.4	3.4	4.3	5.3	6.2	15	3	51
18	1.2	2.2	3.2	4.2	5.1	1.2	2.5	3.3	4.3	5.4	6.2	25	0	54
19	1.2	2.2	3.3	4.1	5.1	1.2	2.3	3.3	4.2	5.3	6.2	34	15	55
20	1.2	2.2	3.3	4.2	5.1	1.2	2.2	3.2	4.2	5.4	6.3	23	0	54
21	1.2	2.1	3.3	4.2	5.1	1.2	2.4	3.3	4.1	5.4	6.2	31	9	49
22	1.2	2.1	3.1	4.2	5.2	1.2	2.3	3.4	4.1	5.1	6.2	32	3	50
23	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.2	4.2	5.4	6.2	32	2	55
24	1.2	2.2	3.2	4.2	5.1	1.2	2.4	3.3	4.2	5.4	6.1	32	10	52
25	1.2	2.2	3.3	4.2	5.1	1.2	2.3	3.3	4.1	5.4	6.2	33	12	51
26	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.2	4.2	5.3	6.2	31	0	45
27	1.2	2.1	3.2	4.1	5.1	1.2	2.4	3.3	4.2	5.4	6.2	32	8	43
28	1.2	2.2	3.2	4.2	5.2	1.2	2.3	3.3	4.2	5.4	6.2	32	13	50
29	1.2	2.2	3.2	4.1	5.1	1.2	2.2	3.3	4.1	5.4	6.3	32	17	54
30	1.2	2.2	3.2	4.2	5.1	1.2	2.3	3.2	4.2	5.4	6.3	32	4	50
31	1.2	2.1	3.2	4.1	5.2	1.2	2.2	3.3	4.1	5.4	6.2	31	0	46
32	1.2	2.2	3.3	4.2	5.1	1.2	2.3	3.2	4.1	5.4	6.2	29	13	52
33	1.2	2.2	3.1	4.1	5.1	1.2	2.4	3.2	4.1	5.4	6.2	28	16	52
34	1.2	2.1	3.2	4.2	5.1	1.2	2.4	3.4	4.2	5.3	6.2	30	0	54
35	1.2	2.1	3.2	4.1	5.1	1.2	2.3	3.2	4.2	5.3	6.2	27	5	54
36	1.2	2.1	3.2	4.2	5.1	1.2	2.3	3.3	4.2	5.3	6.2	34	15	53
37	1.2	2.2	3.2	4.2	5.1	1.2	2.4	3.4	4.1	5.3	6.2	32	25	54
38	1.2	2.1	3.2	4.1	5.1	1.2	2.4	3.3	4.2	5.3	6.2	27	6	47
39	1.2	2.1	3.2	4.2	5.1	1.2	2.2	3.3	4.1	5.3	6.2	30	18	53
40	1.2	2.2	3.2	4.1	5.1	1.2	2.3	3.3	4.1	5.3	6.2	33	20	53

APPENDIX-XVIII

PHOTOGRAPHS DURING AROMA THERAPY SESSION